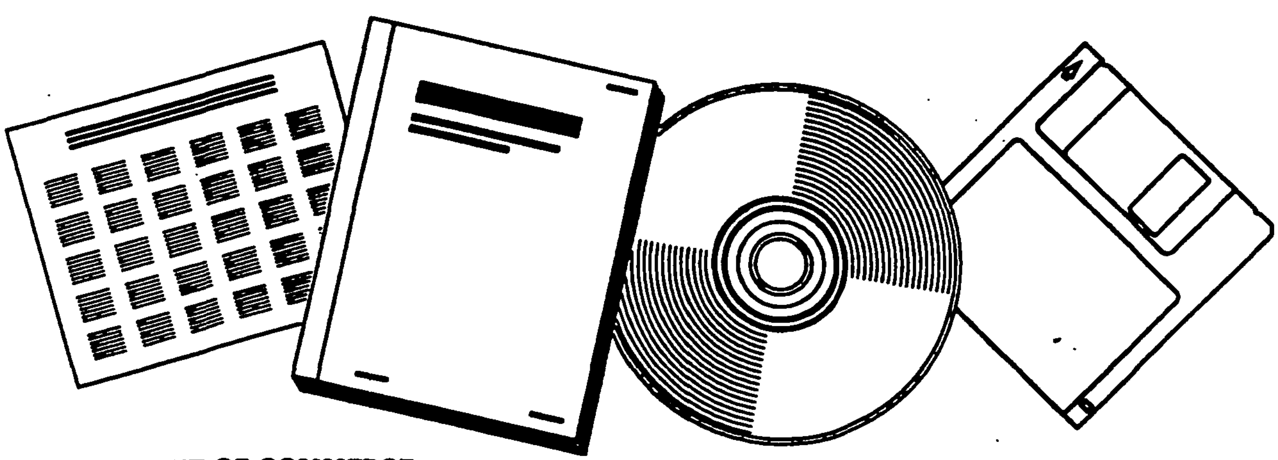
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HYPERSONIC RESEARCH ENGINE/AEROTHERMODYNAMIC INTEGRATION MODEL - EXPERIMENTAL RESULTS -- VOLUME IV: MACH 5 COMPONENT INTEGRATION AND PERFORMANCE

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HYPERSONIC RESEARCH ENGINE/AEROTHERMODYNAMIC

INTEGRATION MODEL - EXPERIMENTAL RESULTS

Volume IV - Mach 5 Component
Integration and Performance

by

Earl H. Andrews, Jr. and Ernest A. Mackley

Langley Research Center

and

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(Contract No. NAS1-6666)

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16. Abstract

The NASA Hypersonic Research Engine (HRE) Project was initiated in 1967 for the purpose of advancing the technology of airbreathing propulsion for hypersonic flight. A large component (inlet, combustor, and nozzle) and structures development program was encompassed by the project. The component development program was culminated in 1974 with the tests of a full-scale (18 in. diameter cowl and 87 in. long) HRE concept, designated the Aerothermodynamic Integration Model (AIM), in the NASA Lewis Research Center, Plum Brook Station Hypersonic Tunnel Facility at Mach numbers of 5, 6, and 7. AIM tests descriptions, data results, and analysis results have been previously documented. Four reports document computer program analysis results of the AIM experimental engine performance. Enough information is included in the four reports to enable additional analysis and/or additional or different interpretation of the AIM data. The present report (Volume IV) presents computer program results for Mach 5 component integration and performance tests. Program results are contained in three additional volumes that have the following subtitles:

Volume I - Mach 6 Component Integration
Volume II - Mach 6 Performance
Volume III - Mach 7 Component Integration and Performance

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HYPERSONIC RESEARCH ENGINE/AEROTHERMODYNAMIC INTEGRATION MODEL - EXPERIMENTAL RESULTS

Volume IV - Mach 5 Component Integration and Performance

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SUMMARY

An extensive aerothermodynamic development program for the purpose of advancing the technology of airbreathing propulsion for hypersonic flight has been conducted by NASA in the form of the Hypersonic Research Engine (HRE) Project. The engine components (inlet, combustor, and nozzle) aerothermodynamic development program culminated in the testing of an engine which integrated these components and allowed assessment of engine performance at Mach numbers of 5, 6, and 7. This engine was termed the Aerothermodynamic Integration Model (AIM) and was a water-cooled, hydrogen-fueled, full-scale configuration of the HRE design concept, 18 inches in diameter at the cowl lip and 87 inches long.

Descriptions of the AIM tests and a computer program used in the engine performance analyses, as well as data results and analyses, have been previously documented. All of the results of the engine performance computer program, including enough information to enable additional analysis or interpretation of the data, are reported in four volumes. Volume I presents Mach 6 component integration results that were obtained with supersonic combustion. During the integration tests, inlet unstart limits were determined for fuel injection from the first stage fuel injectors only and for multi-stage fuel injection. Optimization of the fuel injector combination that would yield the best combustion and engine performance was attempted. Volume II presents Mach 6 engine performance results during supersonic and subsonic combustion modes. Combustion mode transition was successfully performed, exit surveys made, and effects of altitude, angle of attack, and inlet spike position were determined during these tests. Volume III presents Mach 7 component integration and engine performance results with supersonic combustion modes. Fuel injector optimization was again attempted, exit surveys made, and the effects of low free-stream total temperature, free-stream oxygen content, and angle of attack were studied during these tests. Volume IV (present report) presents Mach 5 component integration and engine performance results with supersonic and subsonic

combustion modes. Combustion mode transition was successfully demonstrated, exit surveys made, and effects of free-stream total temperature, free-stream oxygen content, and angle of attack were investigated during these tests.

INTRODUCTION

The NASA Hypersonic Research Engine (HRE) Project was undertaken to design, develop, and construct a hypersonic research ramjet engine for high performance and to flight test the developed concept on the X-15-2A airplane over the speed range from Mach 3 to 8. It should be emphasized that from the beginning the design was specified to be a research ramjet engine to conduct meaningful experiments and was in no sense intended to be a small-scale prototype of a propulsion system for any particular mission.

About one year after the development phase of the HRE program was underway, the X-15 program was phased out; as a result, adjustments to the project plan and scope were necessitated, which were, however, effected without detriment to achievement of the basic project objectives. The result of the adjustment was that ground testing became the major experimental effort for the HRE program. Engine aerothermodynamic components (inlet, combustor, and nozzle) were developed in separate ground-test programs. Results of the development tests are documented in references 1 through 3. Regeneratively cooled engine structures were also included in the ground-testing program. Tests of the hydrogen-cooled engine structure progressed from small panels and problem area components in laboratory setups to wind-tunnel tests at Mach 6.7 of a full-scale, flight-weight engine termed the Structure Assembly Model (SAM). Results of this program, which was completed in May 1971, are reported in reference 4. Culmination of all the HRE development testing was the engine tests of what was termed the Aerothermodynamic Integration Model (AIM). The purpose of the tests of this full-scale, water-cooled, hydrogen-fueled engine was to integrate the aerothermodynamic components and to assess the engine performance at Mach numbers of 5, 6, and 7. Successful tests of the AIM were completed in April 1974.

The AIM employed the HRE design concept of an axisymmetric engine, 18 inches in diameter at the cowl lip and 87 inches long. Versatility was incorporated into the AIM to allow: (1) inlet spike translation for optimum air flow and inlet internal contraction ratio variation; and (2) hydrogen fuel injection for tailored fuel distribution for proper heat release in a diverging combustor, and to change the mode of combustion from supersonic to subsonic or vice versa. The AIM tests are reported in reference 5 and data results of the tests have been analyzed in terms of engine performance by use of a computer program (ref. 6) generated during the HRE program. Results of these analyses are reported in references 7 through 9.

The purpose of the present reports (herein and refs. 10 to 12) is to present experimental engine performance results obtained from computer program analyses of the test data. These results contain the free-stream conditions, pressure distributions, fuel injection configuration and rate, etc., that should enable additional analysis or interpretation of results other than those previously reported. It

should be noted that all units are in U.S. Customary Units because the data results from the HRE contracts, which were initiated in May 1965 with a follow-on effort in February 1967, were under that system. Because of the cost that would have been incurred if the contractors had been required to change to the metric system, the U.S. Customary Units were retained through the HRE contractual effort; this procedure is consistent with the guidelines for conversion established by NASA.

SYMBOLS

All units are in U.S. Customary Units because of the reason noted above.

A	area, $ft.^2$
M	Mach number
P or p	pressure, psia
r	radius, in.
R_{CL}	cowl lip radius at 12° tangent point (see table 3), in.
x	longitudinal distance from inlet spike virtual tip (see table 3), in.
x_{CL}	longitudinal distance from inlet spike virtual tip to the cowl lip 12° tangent point (see table 3), in.
Δx	longitudinal distance inlet centerbody moved from inlet physical close-off, in.
$\Delta\Delta x$	difference between an actual x_{CL} value and the Mach 6 x_{CL} value of 34.884 in., in.
T	temperature, ^oR
α	angle of attack, deg.
ϕ	fuel equivalence ratio; value of unity is for stoichiometric combustion (subscript symbols or notations, such as ϕ_{1A} or ER1A, represent the values for the designated fuel injector (e.g., 1A), EROA is the sum of all ϕ-values).

Subscripts:

0	free stream
ref.	reference condition
th	throat
T	total

APPARATUS

Experimental Tests

Experimental tests of the HRE/AIM were conducted in the Plum Brook Hypersonic Tunnel Facility (HTF) (figs. 1(a) and 1(b)) at nominal Mach numbers of 5, 6, and 7. The AIM is shown partially installed in the HTF in the photographs of figures 1(c) and 1(d). During the tests the engine was nearly completely enshrouded except for an 11-inch gap between the facility nozzle exit and the front of the shroud as depicted in the schematic of figure 1(e). This test configuration was suggested by results of a subscale tunnel starting investigation reported in reference 13.

A description of the facility and the results of calibration tests are presented in reference 14. The test facility used an induction-heated, drilled-core graphite storage bed to raise the temperature of nitrogen to a nominal 4960° R at a maximum design pressure of 1200 psia. The nitrogen was mixed with ambient-temperature oxygen to produce synthetic air. Diluent nitrogen was added with the oxygen in the mixture at tunnel Mach numbers below 7 to control free-stream total temperature and to supply the correct weight flow. Because of facility heater deterioration and a lack of time to implement necessary repairs, true temperature simulation of 3700° R at Mach 7 was not achieved; a maximum temperature of about 3100° R was obtained.

The original test plan is summarized in table 1. Because of testing problems and limitations in facility schedule, the test plan was altered to provide a maximum of data to meet the test objectives. Details of the AIM tests are described in reference 5. General test conditions, results, and remarks of the AIM tests were tabulated in references 5 and 9 and are presented herein as table 2. All tests (reading numbers in second column) are listed including the tests that were aborted because of tunnel starting or other problems. Run numbers were assigned to AIM reading numbers or groups of AIM reading numbers with the same test objective (some readings represent zero success, partial success, or are reruns of others) to provide a means for a cross-check with the original plan.

Model

The HRE/AIM was a full-scale (18 inches in diameter at the cowl and 87 inches long), water-cooled, hydrogen-fueled research engine. Details of the design and fabrication of the AIM have been reported in references 16 through 29. The design is described generally in references 5 and 9, and some difficulties encountered with the AIM during the tests are discussed in reference 5.

A schematic of the AIM is presented in figure 2 and the coordinates are listed in table 3. The AIM incorporated a mixed compression inlet with a translating spike that enabled the close-off of the engine (an early HRE program

requirement). The inlet was designed for spike translation to the most open position for Mach 4 to 6 operation with spillage occurring up to Mach 6. At Mach 6 "shock-on-lip" occurred, and from Mach 6 to 8 the spike was designed to translate to maintain shock-on-lip over this Mach number range. An "upsloping throat" was incorporated in the inlet which enabled the inlet to not only maintain shock-on-lip with spike translation for Mach 6 to 8, but also to have increased inlet contraction ratio with increased Mach number. The combustor was designed with diverging walls and the area distribution is shown in figure 3(a) with fuel injector locations indicated. Figure 3(b) presents a sketch of the combustor with the locations of the staged fuel injectors and two sets of ignitors indicated (a third set of ignitors planned for the outerbody at an x-station of 54.38 inches was not installed). The set of ignitors at an x-station of 42.0 inches malfunctioned and use was discontinued (see fig. 3(b)) about midway in the Mach 6 test program (see discussion in ref. 5). Injectors 1A, 1B, 1C, 4, 2A, and 2C were designed to allow optimum distribution of the fuel in the combustor to obtain a fuel equivalence ratio, ϕ, of unity during the supersonic combustion mode. During the supersonic combustion mode, it was desired to inject the maximum amount of fuel from the first-stage injectors (1A and 1B) without unstarting the inlet; all of the fuel was designed to be injected from injectors 1A and 1B at Mach 8. Injectors 3A and 3B were designed for use in the subsonic combustion mode. The locations are tabulated in figure 3(b) for the designed Mach 6 inlet operating position; cowl lip positions other than the Mach 6 position (because of spike translation) result in different x-station values for the injectors and ignitors on the outer wall and also for injector 3B. These changes are accounted for in the performance results presented herein.

Instrumentation

Planned instrumentation for the AIM is documented in reference 15. All of the instrumentation planned was not used because of facility instrumentation recording channel limitations or damages to instrumentation in inaccessible places during the AIM final assembly or during AIM repairs at the test site. A list of all planned instrumentation is presented in table 4 (obtained from ref. 5) with notations indicating the items not installed or damaged, the recording channel numbers for each item used, and the ranges of the pressure transducers or thermocouples.

Method of Calculation

A computer program that incorporated methods described in reference 15 was used in reducing the data from the AIM tests to engineering units. Listings of this program were checked for accuracy and determination of steady-state conditions. Times of interest were selected from each run and the information from the engineering units computer program was used in a performance analysis computer program which incorporated methods described in reference 6. After the erroneous surface pressures were eliminated, the remaining pressures at each station were averaged by the performance computer program which then performed surface-pressure integration by linear interpolation and determined the skin-friction coefficients. Chemical equilibria of the synthetic air and fuel-air mixtures were calculated by the program using methods described in reference 30.

Description of Performance Program Methods

General.- Several methods were used to establish validity of critical parameters, such as the wind tunnel Mach number. The first method used curves generated from instrumentation rakes installed during calibration of the wind tunnel. The second method used measured values of wind tunnel total pressure and temperature, and pitot pressure at the spike tip along with real-gas, normal-shock solution to calculate the wind tunnel Mach number. The third method used measured values of wind tunnel total temperature, spike-tip pitot pressure, and spike cone surface pressure, along with the real-gas, normal-and conical-shock solutions, to calculate the wind tunnel Mach number. Calculations made utilizing each of the three methods indicated good agreement. After confidence was established in the three methods, the use of the third method was discontinued, since it required excessive computer time. Additional information concerning tunnel Mach number determination is contained in reference 9.

The conditions at the inlet throat were determined by computing the momentum and total enthalpy from the pressure forces and accounting for friction and heat losses incurred on the inlet spike and the internal surfaces. The inlet mass flow ratio and additive drag were determined from theoretical calculations (ref. 31). Pressures used in these calculations were obtained as follows: (1) for conditions where inlet start was obtained ($M_{th} > 1$), the calculated mass-momentum-average static pressure was used, and the measured static pressures at the throat were not used; and (2) for conditions where inlet unstart was experienced ($M_{th} \leq 1$), the average of the measured static pressures at the throat was used with the Mach number constrained to unity to calculate spillage and additive drag.

For both cases above, the flow was analytically expanded (isentropically) from the inlet throat conditions to the freestream static pressure in order to determine the hypothetical static enthalpy and associated velocity which are required to compute the inlet kinetic energy efficiency and the inlet process efficiency (as required under the contract statement of work). Also the flow was analytically compressed (isentropically) from the inlet throat conditions until the calculated total enthalpy matched the known total enthalpy after heat loss. For a started inlet, a side calculation was made by isentropically expanding the flow to an area which was arbitrarily set 10 percent larger than the throat area (for flow stability). At this point, the flow was passed through a normal shock. The limiting subsonic pressure recovery for the inlet and the corresponding kinetic energy and process efficiencies were then determined from conditions downstream of the normal shock. These inlet performance parameters were considered of interest as indicators of the overall inlet performance and of flow conditions prior to inlet unstart.

Two methods were used to calculate conditions at the combustor stations: (1) up to the first station where fuel was injected, the mass-momentum-averaged static pressure that satisfied the state, continuity, momentum, and energy equations was calculated; and (2) at stations downstream of the first fuel injector the average of the measured innerbody and outerbody pressures was used, and the combustor efficiency was calculated to satisfy the conservation equations. For these methods it was assumed that the flow area equals the geometric duct

area (no flow separation). The amount of hydrogen required to react in order to satisfy the measured static pressure, the duct area, the heat loss, and the conservation equations is computed by the program. Of the total hydrogen injected or present in the flow at a given station, the amount which reacts has been named "real" hydrogen and is used in the equilibrium chemistry process being completed. The hydrogen which is not reacting has been named "inert" hydrogen. The concept of real and inert hydrogen and the station-wise conversion from inert to real is simply a bookkeeping procedure in the program which simulates or "models" the mixing process. The inert hydrogen is assumed to have the properties of an inert gas, not to react with other species, and not to dissociate.

The combustor throat was defined as the point of minimum-flow area between the struts in the subsonic combustion mode and at the strut exit plane in the supersonic combustion mode. When the computed one-dimensional Mach number at the assumed combustor exit was found to be less than 0.95, the computation was considered to improperly represent the subsonic combustor flow situation in that the flow must have reached a sonic point further downstream. With the area increasing added combustion (heat release) downstream of the assumed combustor exit station is implied. Therefore, a side calculation was made of the combustor efficiency required to produce sonic velocity at the assumed combustor exit station, as if this added heat release occurred prior to the assumed combustor exit station. For this condition, the performance program printout shows results under the heading SONIC THROAT (e.g., reading 94, time 150.342 sec).

The regeneratively cooled combustor performance ("COMBUSTOR REGEN" in the performance program printout) was simulated by recalculating the total enthalpy at the combustor exit as the sum of the free-stream enthalpy of the synthetic air, the enthalpy of the hydrogen fuel at 50°R, and the absolute value of the heat loss through all the engine surfaces wetted by the internal flow stream. Using this total enthalpy, the stream total pressure, and the same combustion efficiency, the combustor exit static-state properties were also computed.

Nozzle performance was obtained by isentropically expanding the flow from the actual and regeneratively cooled combustor exits to the nozzle exit area and to ambient pressure ("NOZZLE AE" and "NOZZLE PO" in the performance program printout). The flow was then isentropically expanded from the actual combustor throat to those nozzle stations representing the locations of pressure taps, and the local skin-friction coefficients were calculated using the Spalding-Chi correlation. The nozzle vacuum stream thrust coefficient was also computed. This coefficient is arbitrarily defined in previous HRE documents (e.g., refs. 3 and 15) as the ratio of the actual nozzle exit total momentum (stream thrust) divided by the theoretical nozzle exit total momentum where the flow was isentropically expanded from the combustor exit conditions to the nozzle exit area (512.389 in^2). The actual nozzle exit total momentum was determined by taking the combustor exit total momentum and adding (or subtracting) the pressure force, the friction force, and one-half of the calculated drag force (one-half of strut assumed to be charged to the nozzle component). The hypothetical static enthalpy resulting from the computed isentropic expansion from the combustor exit conditions to the free-stream static pressure was used to calculate the nozzle kinetic energy and process efficiencies.

Side calculations were made of a fictitious stagnation combustion process (constant pressure and zero velocity) with 100 percent combustion efficiency and no loss to the walls (denoted in the performance program printout as "FICTIVE COMBUSTOR"), followed by an isentropic expansion to ambient pressure to obtain the combustor effectiveness. Also to obtain the combustor effectiveness, the flow at the combustor exit was expanded to free-stream static pressure and the total momentum at this pressure was determined. The combustor effectiveness (ref. 15) is then the change in total momentum for the actual combustor process from the combustor entrance condition to the expanded (free-stream static pressure) condition divided by the change in total momentum for the fictitious process mentioned above from the combustor entrance condition to the expanded (free-stream static pressure) condition. Side calculations were also made of a fictitious nozzle to determine the static and total conditions ("FICTIVE NOZZLE" in the performance program printout) required to match the actual vacuum specific impulse at the nozzle exit.

Calculation of cooling load distribution.- For the AIM tests, the heat loss distribution was determined from the differences between the skin thermocouples inbedded in the engine surfaces and the cooling water temperatures. Standard heat-transfer equations were used to obtain local heat losses. These losses were then adjusted linearly with the overall heat loss as measured by the overall water temperature rise. The detailed equations and procedures used for these computations are presented in reference 9.

Tare forces.- Purge nitrogen was injected in the AIM cavity between the non-metric "windshield" shroud and the metric outerbody to assure that hot tunnel gases did not enter into this cavity. This method produced a large tare force which was of the same order of magnitude as the engine net thrust. An effort was made to reduce and even control the tare force by suitable control of the pressures in two parts of the cavity. This tare-force control concept was, however, not achieved. Since the thrust is considered the most important measurement in evaluating the engine performance, special tare-force calibration tests were made and the results carefully correlated in order to determine the correction for the measured thrust. The method and procedures are described in detail in references 5 and 9.

External drag.- The external drag was calculated from the summation of pressure and friction forces acting on the external metric surfaces of the AIM. The method and procedures are described in reference 9.

Strut force calculation.- The performance program was originally programmed to calculate strut force based on a theoretical calculation, assuming uniform flow ahead of the strut. This force should be a drag term since, theoretically, pressures downstream of the maximum strut blockage should be lower than upstream. However, test data indicate that this is only true with subsonic combustion. Upon examination of the test data, it appeared that measured static pressures between struts on both the inner and outer walls (there were no measurements along the strut surfaces) could be used to represent the forces occurring on the strut surface. Thus, a pressure integral was used to determine the strut force and a calculation was also made for strut base pressure as discussed in reference 9.

Performance correction for regeneratively cooled system.- The AIM incorporated a water-cooled jacket in which heat was rejected and not recovered. In order to compensate for this heat loss, hydrogen fuel was heated up to 1500° R to simulate a regeneratively cooled system. The deficiency of energy in the system in terms of theoretical energy release was less than 10 percent in all cases.

In order to correct this deficiency, the performance computer program (ref. 6) incorporated a side calculation in which the energy deficiency, because of the heat loss through internal surfaces, was added to the stream at the combustor exit with no total pressure change. The flow was then expanded to the nozzle exit with measured nozzle efficiency. The differences between the heat added to fuel and the internal cooling loss are presented for several tests in reference 9 as table 6.6-1.

Performance correction for inlet total temperature.-Because of the facility heater deterioration, the true temperature simulation of 3700° R at Mach 7 was not achieved (the test Mach number was generally about 7.25 requiring a simulation temperature of about 3960° R). It is known that the effect of decreasing total temperature is to increase the engine performance. Therefore, it is necessary to correct the measured performance for Mach 7 (ref. 12) to properly account for deviations in test conditions. Theoretical calculations indicate that, at Mach 7, a decrease of 560° R would increase the thrust coefficient by 5 percent and the specific impulse by 3.5 percent. The accomplishment of this correction in the performance computer program (ref. 6) employed the methods discussed in reference 9.

Determination of tunnel gas composition.- The oxygen-to-nitrogen ratio was determined from the flow measurements of oxygen, diluent nitrogen, and nitrogen entering the storage heater, and checked by gas samples taken through two aspirating thermocouple probes 180° apart in the facility nozzle entrance prior to each run. The samples were collected in high-pressure bottles and later analyzed on a mass-spectrometer. The measured compositions for each run are presented in reference 9 as table 6.8-1. The one-dimensional performance computer program (ref. 6) used only the N_2 and O_2 values.

RESULTS

Selected points of interest of the HRE/AIM test data have been analyzed by use of the one-dimensional performance analysis computer program (ref. 6). The amount of material generated requires four volumes. Mach 5 component integration and engine performance results are presented herein. Mach 6 component integration results, Mach 6 engine performance results, and Mach 7 component integration and engine performance results are presented in references 10 to 12, respectively. All of these results were used in references 7 through 9 in the discussion of the results of the AIM test program.

Selected Test Points for Performance Analysis

Details of the AIM tests were discussed in reference 5 which included a list of all the HRE/AIM tests; this list is contained herein as table 1 (included in each volume). The individual AIM tests were recorded as consecutive reading numbers that extended through number 97 for a total operation time of 112 minutes with 41.5 minutes of combustor operations. About 60 successful tests are noted in the first column of table 2.

Reference 5 documented the fuel injection schedules, both planned and measured, for the successful tests. The measured fuel injection schedules for the successful Mach 5 tests are contained herein for convenience in figure 4. Such plots were reviewed and points (run time) of interest were selected for performance analysis. The selected points were listed in reference 9 and are included in tables 5(a) through 5(d) for the results presented in references 10 through 12 and herein, respectively, where the times correspond to the abscissa in figure 4. The first column of table 5 indicates the page number of the initial page of the data for a given test point (specific time of a reading number). Table 5 indicates the general test conditions and fuel injection equivalence ratios, ϕ, for the first-, second-, and third stage injectors and the accumulative ϕ-value. Also, the use of ignitors is indicated and the general purpose of the test is noted.

Vagaries in the test program that should be noted (table 5, last column) are:

(1) Fuel equivalence ratio values, ϕ, in table 5 for reading 93 are lower than the values indicated by the fuel injection schedule (fig. 4(a)). In preparation for the performance analysis, the tunnel measured oxygen content was found to be about 34 percent instead of the standard 21 percent; therefore, the fuel equivalence ratios were corrected to account for the difference in the available oxygen for combustion.

(2) Time 235 seconds in reading 90 is for an inlet unstart condition. With an unstart, the captured mass flow is, of course, greatly decreased, and since the fuel flow rate is still high, the ϕ-value would be high as indicated, therefore this time is not very meaningful.

(3) At Mach 7 the agreement between computed thrust (a function of $\int pda$) and measured thrust was not nearly as favorable as experienced for Mach 6. Examination of the surface static pressure distributions on the outer combustor surface in the vicinity of the pressure rise indicated some pressure instrumentation to be faulty. For reading 89, more reasonable values were substituted for the measured pressures and the performance recomputed. The recomputation was performed for two different times, 316.47 and 327.27 seconds (see table 5(c)), and the results indicate a much more favorable agreement between the computed and measured thrust. The channel numbers in which new pressure values were substituted are noted on the first page of the results for these two times. A more detailed discussion of this exercise is contained in reference 9 (section 7.7.2 Mach 7 Performance).

(4) Times 264.04, 274.84, and 275.74 seconds of reading 96 had a fuel flow measurement malfunction that indicated no fuel flow from injector 1B. Injector 1B manifold pressure, however, indicated flow to exist at pressure levels about equal to planned pressure levels (ϕ-values about the same as for injector 1A). The performance calculations for these times of reading 96 erroneously used only fuel flow from injector 1A.

(5) At time 313.54 seconds, also of reading 96, the test chamber pressure was noted to be high, thus yielding unrealistically high pressures on the AIM nozzle shroud and plug that would, of course, contribute erroneously to increased engine thrust.

Description of Performance Computer Results

The selected points listed in table 5 were analyzed using the performance computer program described in reference 6. As noted in the Method of Computation section, the AIM test data were reduced to engineering units and reviewed for erroneous data. Such data were "coded out" in the performance computer program. Table 6 indicates the channels that were coded out. The COXX indicates the code outs for a reading number, e.g., for reading 33, CO33 is indicated. Channels that are coded out are listed adjacent to the notation KODSEL, e.g., for reading 33 the first and last of 85 coded out channels are 60 and 399, respectively. The locations and type of measurement for the listed channels may be determined by referring to table 4.

Several points (run time) of interest were selected for each run as indicated in table 5. The page numbers indicated in the first column of table 5 are output listings of the performance computer program (ref. 6). For each time of interest there are seven or eight pages of computer output listings. On each of these pages a standard heading exists: READING number (test number); BLOCK number (numbered sequentially and corresponding to recording times of test data); TIME (of data recording, seconds); MACH number (in wind tunnel); PT (total pressure in wind tunnel, psia); TT (total temperature in wind tunnel, ^{o}R); and PAGE number.

Station flow parameters.- A summary of flow parameters at each calculation station in the AIM is contained on pages 1, 2, and 3. Each station is headed by a station designator (i.e., WIND TUNNEL, INLET THROAT, COMBUSTOR, etc.), followed by three integers (the zero following the combustor designator is meaningless). The first integer denotes the station number, the second denotes the combustor station, and the third denotes the number of interations required to converge on a solution. The third integer may assume values between 0-21, 100-121, and 200-221. A value of the third integer equal to 21 denotes that the mass flow was too great or the flow area too small to obtain a solution, 121 denotes that the solution for total conditions did not converge in 21 interations and 200-221 denotes that the mass flow was too small or the flow area too large to obtain a solution. When both solutions for static and total conditions have converged, the third integer may assume the values 1-20 or 101-120 depending upon which solution (static or total) required the larger number of interations. Columns 2-8 have two rows of values for each station; total and static conditions in first and second rows, respectively.

Most of the station designators are self-explanatory. The first appearance of the designators WIND TUNNEL and SPIKE TIP NS (NS = NORMAL SHOCK) reports conditions in wind tunnel and upstream of the spike tip based on a wind tunnel Mach number determined from calibration runs. The second appearance of these designators reports these conditions based on a wind-tunnel Mach number calculated from the total and pitot pressures and the total temperature of the synthetic air applied to the normal shock equations. The designators INLET UPNRSK and INLET DNNRSK denote conditions upstream and downstream of a normal shock positioned at a fictitious flow area 1.10 times the flow area at the inlet throat. The designator COMBUSTOR REGEN denotes, for cases with fuel flow, conditions at the combustor throat simulating a regeneratively cooled ramjet. In some cases (e.g., reading 94 time 150.342 sec) the designator SONIC THROAT appears ahead of the COMBUSTOR REGEN. This denotes the results discussed in section entitled "Description of Performance Program Methods." NOZZLE AE and NOZZLE PO report conditions when the flow is expanded isentropically to the nozzle exit area and to the wind-tunnel static pressure, respectively. NOZZLE AE REGEN and NOZZLE PO REGEN denote, for cases with fuel flow, conditions at the nozzle exit simulating a regeneratively cooled ramjet. FICTIVE COMBUSTOR denotes stagnation combustion conditions (zero velocity and constant pressure) with combustor efficiency equal to unity. FICTIVE NOZZLE reports conditions required to match the actual momentum and nozzle exit area.

Definition and units of parameters in the SUMMARY REPORT, pages 1-3 in the computer listings, are listed below:

P - pressure, psia
T - temperature, ^{o}R
H - enthalpy*, Btu/lb_m
GAMMA - specific heat ratio
MOLWT - molecular weight
SONV - conic velocity, ft/sec
MACH - Mach number
VEL - flow velocity, ft/sec
S - entropy, Btu/lb_m-^{o}R
W/A - flow rate per unit area, lb_m/sq in
W - flow rate, lb_m/sec
A/AC - mass flow ratio
MØMTM - flow momentum, lb_f
Q - dynamic pressure, lb_f/sq in
IVAC - vacuum specific impulse, lb_f-sec/lb_m
PHI - equivalence ratio (see discussion in Ramjet Performance section)
ETAC - combustor efficiency

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*Two values were reported. The first value (column 4) was the JANNAF-based enthalpy. The value in parentheses (column 5) was the enthalpy potential or the sensible enthalpy based on the equation

$$\sum_i \int_0^T C_{p,i}dT \quad \sigma_i(T) = \sum_i \quad H_{f,i}^{298} + \int_{298}^{T} C_{p,i}dT \quad \sigma_i(T)$$

$$- \sum_i \quad H_{f,i}^{298} + \int_{298}^{300} C_{p,i}dT \quad \sigma_i(T) + \sum_i \int_0^{300} C_{p,i}dT \quad \sigma_i(T)$$

where: $C_{p,i}$ is specific heat at constant pressure, Btu/lb_m - ^{o}R, and $\sigma_i(T)$ is the mass fraction of the specie i as a function of temperature and H_f is fuel enthalpy.

Cooling and surface-pressure parameters.- Surface pressures, cumulative surface-pressure integrals, cumulative cooling losses, cumulative surface area, and pressure ratios for axial distances from the AIM virtual spike tip are listed on pages 4 and 5.

Definitions and units of the parameters are as follows:

XABS - axial distance from virtual spike tip, in
P-IB - surface pressure on innerbody, psia
P-ØB - pressure on cowl inner surface, psia
PDA - cumulative surface-pressure integral, $\int_0^{X_{ABS}} PdA$, lb_f

QØX - cumulative total cooling loss, Btu/sec
Q-IB - cumulative cooling loss from innerbody, Btu/sec
Q-ØB - cumulative cooling loss from outerbody, Btu/sec
CAWALL - cumulative surface area, sq in
P-IB/PSØ - innerbody static to wind-tunnel static-pressure ratio
P-IB/PTØ - innerbody static to wind-tunnel total-pressure ratio
PØB/PSØ - outerbody surface static to wind-tunnel static-pressure ratio
PØB/PTØ - outerbody surface static to wind-tunnel total-pressure ratio

Drag and heat-transfer coefficients.- Longitudinal values of drag force and drag and heat-transfer coefficients are listed on page 6 (for some cases on page 6 and 7). Definition and units of the parameters are as follows:

X - axial distance from spike virtual tip, in
DDRAG - incremental frictional drag force, lf_f
CDRAG - cumulative frictional drag force, lb_f
C_F - friction-drag coefficient
HC - heat-transfer coefficient, Btu/(sec-sq ft-^{o}R)

Ramjet performance.- AIM performance parameters and pertinent information are contained on page 7 (page 8 for some cases). The performance parameters are generally self-explanatory; detailed discussion about the methods of computation are presented in references 6 and 9. Parameters listed below STATIONS are presented since they are related (except for the inlet throat) to the cowl leading-edge station. The NOMINAL COWL LEADING EDGE refers to the x_{CL} (table 3) value for the Mach 6 design operating position. SPIKE TRANSLATION is the recorded distance between the nominal and the actual x_{CL} value (this distance is designated as $\Delta\Delta x$ in symbols and used in figure 3(a)); all dimensions other than those for the inlet spike are corrected by this amount.

The fuel injectors and their corrected stations in inches are shown. A letter in the VALVE column indicates the injectors that were in use during the respective time. Table 5 indicates the general fuel equivalence ratio values for the various injector stages. The actual fuel equivalence ratio, however, for each injector can be determined by noting the step increases in the PHI column on the output, pages 1-3, for the respective time (ignore 0.01 or 0.02 changes); the step difference at the combustor station corresponding to the indicated injector station is the ϕ-value for the respective injector.

SUMMARY OF TESTS

The Hypersonic Research Engine/Aerothermodynamic Integration Model was tested in the NASA Hypersonic Tunnel Facility at the Plum Brook Station of the NASA Lewis Research Center. Synthetic air (heated nitrogen with proper amount of oxygen added) was delivered by the facility at nominal Mach numbers of 5, 6, and 7. The Mach 5 and 6 tests were conducted at true air temperature while Mach 7 tests were conducted at Mach 6 temperature (3000° R) because of heater deficiency. Changes in total temperature and instream oxygen content at Mach 5 and 7 were also explored. The hydrogen fuel was heated up to 1500° R prior to injection to simulate a regeneratively cooled system.

The engine testing was completed with an accumulated actual running time of about 112 minutes with 41.5 minutes of combustor operation. The important achievements realized from this test program which advanced the state-of-the-art in hypersonic propulsion were discussed in detail in reference 9 and are:

1. Realistic engine performance levels for hypersonic flight were obtained from Mach 5 to 7.

Test Mach No.	Equivalence Ratio	Internal Thrust Coefficient	Internal Specific Impulse
5.1	1.0	0.910	2740
6.0	1.0	0.735	2360
7.25	1.0	0.570	2170

2. Engine inlet performance agreed well with theoretical prediction. Combustor efficiency of 95 percent was achieved. Nozzle vacuum thrust coefficient was lower than predicted.

3. The interaction effects in staged fuel injection were very important in achieving auto-ignition, high combustor efficiency, and overall performance. High supersonic combustor efficiency in a diverging duct was difficult to achieve. The strong stage interaction effects discovered during these tests may be used to great advantage in future designs.

4. The "transonic combustion" or "mixed combustion mode" was the most efficient heat addition process in the range of Mach numbers and temperatures tested in this program.

5. The effects of ignitors, altitudes, spike translation, fuel schedules, angle of attack, step and struts, inlet gas composition, inlet total temperature, and component interactions were investigated and correlated.

6. Stable subsonic and supersonic combustion and convertibility over a range of fuel equivalence ratios at Mach 5 and 6 was demonstrated.

7. The overall cooling load and its distribution as compared with theoretical prediction was determined.

8. Experience was acquired in free jet testing in a ground test facility with large model blockage and combustion.

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Table 1. - Summary of planned HRE/AIM wind tunnel tests.

(obtained from ref. 9 and 15)

RUN	M_0	PTO, PSIA	TTO, °R	α	FUEL SYSTEMS	FUEL SCHED.	INLET Δx, IN.	COMBUSTION MODE	RUN TYPE AND PURPOSE
1	6	466	1500	0	-	-	4.23	-	Purge force, nominal case
2	6	466	1500	0	-	-	1.90	-	Purge force, effect of spike position
3	6	466	1500	3	-	-	4.23	-	Purge force, effect of angle of attack
4	6	466	2000	0	-	-	4.23	-	Operation checkout, effect of higher TTO
5	6	466	3000	0	-	-	0, 1.71, 2.52 4.23, aft stop	-	Airflow calibration, effect of altitude
6	6	930	2946	0	-	-	0, 1.71, 2.52 4.23, aft stop	-	Airflow calibration, nominal case
7	6	930	2946	3	-	-	0, 1.71, 2.52 4.23, aft stop	-	Airflow calibration, effect of angle of attack
8	6	930	2946	0	1a, 1b	1	4.23	Supersonic	Inlet-combustor performance, ignition and inlet unstart limits
9	6	930	2946	0	1a, 1b, 2a, 2c	2	4.23	Supersonic	Inlet-combustor performance, injector optimization
10	6	930	2946	0	1c, 4, 2a, 2c	2	4.23	Supersonic	Inlet-combustor performance, injector optimization
11	6	930	2946	0	1a, 1b, 1c, 4	3	4.23	Supersonic	Inlet-combustor performance, injector optimization
12	6	930	2946	0	TBD	TBD	4.23	Supersonic	Inlet-combustor performance, injector optimization
13	6	466	3000	0	1a, 1b, 2a, 2c	2	4.23	Supersonic	Inlet-combustor performance, effect of altitude
14	6	700	3000	0	1a, 1b, 2a, 2c	2	4.23	Supersonic	Inlet-combustor performance, effect of altitude
15	6	930	2946	0	1a, 1b, 2a, 2c	2	Aft stop	Supersonic	Inlet-combustor performance, effect of spike position
16	6	930	2946	0	1a, 1b, 2a, 2c	2	2.52	Supersonic	Inlet-combustor performance, effect of spike position
17	6	930	2946	0	1a, 1b, 2a, 2c	2	1.71	Supersonic	Inlet-combustor performance, effect of spike position
18	6	930	2946	0	3a, 3b	4	4.23	Subsonic	Inlet-combustor performance, subsonic combustion
19	6	930	2946	0	3a, 3b	5	4.23	Subsonic & transition	Engine performance, subsonic combustion and transition
20	6	930	2946	0	1a, 1b, 2a, 2c	2	4.23	Supersonic	Engine performance, nominal case
21	6	466	2946	0	1a, 1b, 2a, 2c	2	4.23	Supersonic	Engine performance, effect of altitude
22	6	930	2946	3	1a, 1b, 2a, 2c	2	4.23	Supersonic	Engine performance, effect of angle of attack
23	7	520	1500	0	-	-	2.88	-	Purge force
24	7	520	3965	0	-	-	2.34, 2.88 3.24	-	Airflow calibration, effect of altitude
25	7	1000	3840	0	-	-	1.98, 2.88 3.24	-	Airflow calibration, nominal case
26	7	1000	3840	3	-	-	2.34, 2.88 3.24	-	Airflow calibration, effect of angle of attack
27	7	520 & 1000	3965 3840	0	1a, 1b	6	2.88	Supersonic	Inlet-combustor performance, ignition and inlet unstart limits
28	7	1000	3840	0	1a, 1b, 2a, 2c	7	2.88	Supersonic	Inlet-combustor performance, injector optimization
29	7	1000	3840	0	1c, 4, 2a, 2c	7	2.88	Supersonic	Inlet-combustor performance, injector optimization
30	7	1000	3840	0	1a, 1b, 1c, 4	8	2.88	Supersonic	Inlet-combustor performance, injector optimization
31	7	1000	3840	0	TBD	TBD	2.88	Supersonic	Inlet-combustor performance, injector optimization
32	7	522	3965	0	1a, 1b, 2a, 2c	7	2.88	Supersonic	Inlet-combustor performance, effect of altitude
33	7	700	3965	0	1a, 1b, 2a, 2c	7	2.88	Supersonic	Inlet-combustor performance, effect of altitude
34	7	1000	3840	0	1a, 1b, 2a, 2c	7	3.24	Supersonic	Inlet-combustor performance, effect of spike position
35	7	1000	3840	0	1a, 1b, 2a, 2c	7	2.34	Supersonic	Inlet-combustor performance, effect of spike position
36	7	1000	3840	0	1a, 1b, 2a, 2c	7	1.98	Supersonic	Inlet-combustor performance, effect of spike position
37	7	1000	3840	0	1a, 1b, 2a, 2c	7	2.88	Supersonic	Engine performance, nominal case
38	7	522	3965	0	1a, 1b, 2a, 2c	7	2.88	Supersonic	Engine performance, effect of altitude
39	7	1000	3840	3	1a, 1b, 2a, 2c	7	2.88	Supersonic	Engine performance, effect of angle of attack
40	5	445	1500	0	1a, 1b, 2a, 2c	-	4.23	-	Purge force
41	5	206	2210	0	1a, 1b, 2a, 2c	-	4.23	-	Airflow calibration
42	5	415	2210	0	1a, 1b, 2a, 2c	9	4.23	Supersonic	Inlet-combustor performance, nominal case effect of altitude
43	5	415	2210	0	1a, 1b, 2a, 2c	TBD	4.23	Supersonic	Inlet-combustor performance, and ignitor flow rate
44	5	415	2210	0	1a, 1b, 2a, 2c	9	4.23	Supersonic	Engine performance, supersonic combustion
45	5	415	2210	0	3a, 3b	10	4.23	Subsonic	Engine performance, subsonic combustion
46	5	415	2210	3	1a, 1b, 2a, 2c	11	4.23	Subsonic & Supersonic	Engine performance, effect of angle of attack

Table 2. - HRE/AIM Test Run Summary
(obtained from ref. 5).

Run No.	Reading No.	Date	Inlet Condition: Mach No.	Inlet Condition: P_{TO}, Psia	Inlet Condition: T_{TO}, °R	Inlet Spike Position, Δx, in.	Fuel Injectors Used	* Tunnel Config.	Time: Run Min	Time: Run Sec	Time: Useful Min	Time: Useful Sec	Objective of Test	Comments
1	1 through 5	9/14/72	-	-	-	-	-	A	-	-	-	-	Pre-run reference No-airflow engine Purge system calibration	Data not valid due to mechanical interference between AIM and outer cowl body
2	6	10/31/72	6	466	1500/2100	4.266	-	A	-	40	-	-	Facility and engine checkout	Test terminated due to cooling system overpressure abort system failure.
3	7	11/1	6	466	1500	4.266	-	A	2	26	-	-	Same as run 2	Tunnel nozzle started. Inlet started. Strong shocks in test section. Cell pressure ~ 2.0 psia.
4	8	11/2	6	466	1500	4.266	-	A	-	5	-	1	Establish facility operational procedure	Test aborted due to facility problem (TAFP).
5	9	11/16	6	466	1500	4.266	-	B1	-	-	-	-	Same as run 4	Facility shroud extended and washer added to assist tunnel start (TAFP).
	10	11/16	6	466	1500	4.266	-		-	-	-	-	Same as run 4	TAFP
	11	11/16	6	466	1500	4.266	-		2	39	-	99	Same as run 4	Nozzle start and inlet start obtained Cell pressure ~ 1.2 psia. Wedge nozzle pressure changed from 50 to 60 psia. No improvement in cell pressure.
6	12	11/21	6	466	2250	3.962	-	B1	-	-	-	-	Same as run 4	TAFP
	13	11/21	6	466	2250	3.962	-		1	07	-	-	Same as run 4	Wedge nozzle pressure 55 to 90 psig. No tunnel nozzle start. Nozzle started when inlet closed for shutdown.
7	14	11/21	6	466	2950	3.962	-	B1	-	34	-	-	Same as run 4	TAFP
8	15	12/8/72	6	466	2950	4.266	-		-	16	-	-	Same as run 4	TAFP
9	16	1/18/73	6	466	2800	4.266	1C, 4	B1	-	35	-	-	Same as run 4	First combustion attempt. TAFP
	17	"	"	"	"	"	1C, 4		1	06	-	-	Same as run 4	Nozzle start not obtained. TAFP.
	18	"	"	"	"	"	1C, 4		1	00	-	-	Same as run 4	Nozzle start obtained by cycling inlet spike open and closed. Inlet start obtained. Fuel ramped to equivalence ratio = .25 prior to tunnel unstart and TAFP.
10	19	2/2	6	466	2950	0.99/ 4.00	-	B1	-	13	-	-	Same as run 4	Nozzle start with inlet partially open. (Δx = 0.99). TAFP. No fuel injected.
11	20	2/2	6	466	2950	0.99/ 4.00	1C, 4	B1	1	02	-	-	Same as run 4	No start at ΔX = 0.99. Nozzle started by cycling inlet spike. Combustor lit causing tunnel unstart.
12	21	2/15/73	6	750	3000	0.99/ 4.00	-	C1	-	-	-	-	Establish facility operational procedure	Jet pump installed. Test aborted due to freezing of coolant supply system.
13	22	2/21	6	750	3000	0.99/ 4.00	-	C1	-	22	-	-	Same as run 12 above	Jet pump used for this test. Nozzle start obtained. Unstart experienced when inlet was opened. Test aborted manually. Nozzle restart noted during shutdown.
14	23	2/21	6	750	3000	0.99/ 4.00	-	C1	-	58	-	-	Same as run 12 above	Jet pump and wedge nozzle inlet pressure varied. Nozzle start was not obtained. Use of jet pump did not affect test chamber pressure. Seals between AIM support struts and facility shroud blown out.
15	24	2/23	6	750	3000	0.99/ 4.00	-	C2	-	-	-	-	Same as run 12 above	Jet pump inactivated. TAFP
	25	2/23	6	750	3000	0.99/ 4.00	-	C2	-	-	-	-	Same as run 12 above	TAFP
	26	2/23	6	750	3000	0.99/ 4.00	1A, 1B	C2	-	49	-	-	Same as run 12 above	Nozzle start and engine start obtained. Fuel injected for 4 seconds prior to nozzle unstart. Unstart attributed to excessive fuel injected caused by facility valve malfunction.
16	27	3/1	6	930	3100	0.99/ 4.00	-	C2	1	42	-	-	Same as run 12 above	Nozzle start and inlet start obtained. Jet pump inactivated. Fuel was injected, engine inlet unstart experienced 12 seconds later. Inlet start reestablished and fuel again injected. Inlet unstart experienced 9 seconds later. Test was manually aborted. Cowl leading edge assembly separated from the outer body. Cause of the separation was attributed to failure of the screw heads. The failure was caused by overheating of the screw heads resulting from ingesting the hot tunnel environment into this area. Ingestion of tunnel ambient was the result of a shock standing on the AIM cowl. Additional diagnostic instrumentation was installed in the facility shroud and diffuser.
17	28	3/16	6	930	3100	0.99/ 4.00	1A, 1B	B2	1	11	-	-	Establish facility operational procedure to obtain hypersonic airflow.	Tunnel configuration same as config. B except washer inside diameter changed to 44.5 inches. Tunnel unstart observed 19 seconds after fuel introduced. Start reestablished. Test manually aborted 3 seconds later when excessive heating of HRE-AIM cowl leading edge assembly mount flange was noted. Excessive heating of the external skin of the AIM was noted.

* see figure 5-9, reference 5

Table 2. - Continued.

Run No.	Reading No.	Date	Inlet Condition: Mach No.	Inlet Condition: P_{TO}, Psia	Inlet Condition: T_{TO}, °R	Inlet Spike Position, Δx, in.	Fuel Injector Used	Tunnel Config.	Time: Run Min	Time: Run Sec	Time: Useful Min	Time: Useful Sec	Objective of Test	Comments
18	29	3/22	6	930	3100	0.99/ 4.00	1A, 1B	C1	-	36	-	-	Same as run 17 above	Re-run of reading 23 with seal repaired. Jet pump did not improve tunnel start.
19	30	4/27	6	750	2000	0.99/ 4.00	Fuel injec. not planned	D	1	16	-	-	Same as run 17 above	Shroud inlet washer replaced with cone-cylinder and 15° conical diffuser inlet contraction replaced with 7° cone; tunnel nozzle did not start.
20	31	4/30	6	750	2000	0.99/ 4.00	Fuel injec. not planned	E	-	51	-	-	Establish operational procedure	First run with fully started tunnel. Shroud inlet cone cylinder replaced with original 46 in. diameter washer. Tunnel start obtained when inlet spike was cycled twice; supersonic flow in diffuser. Test terminated when target conditions achieved due to limited supply of nitrogen. Test cell pressure was 1.2 psia.
21	32	4/30	6	750	2000	0.99/ 4.00	Fuel injec. not planned	E	1	42	-	-	Determine effect of varying wedge nozzle flow	Tunnel config. identical to run 20. Tunnel start obtained when inlet spike cycled twice. Test cell pressure of 1.0 psia obtained. Wedge nozzle has negligible effect on cell pressure.
22	33	5/4	6	750		0.99/ 4.00	1B, 2B	E	1	25	-	-	Investigate inlet unstart limit with first stage combustion	First successful supersonic combustion run. Intentional inlet unstart when first stage equivalence ratio reached 0.34. No second stage fuel added. O-ring between the outerbody and the cowl leading edge extruded.
23	34	5/15/73	6	750/ 930	3000	0.99/ 4.00	1A, 1B, 2A, 3A	E	2	08	-	-	Checkout AIM and facility. Fuel rich at P_{TO} = 750 psia ϕ = 1.0 at P_{TO} = 930 psia	Tunnel start and inlet start obtained. ϕ of 1.35 set at P_{TO} = 150 psia and ϕ of 1.00 set at P_{TO} = 930 psia. Facility fuel control value for injector 1B oscillated. Run proved AIM and tunnel can operate at $\phi > 1.0$. Erosion of zirconium oxide coating on outer cowl body crossover manifold noted. Erosion caused by carbon dust in tunnel flow.
24	35	5/16/73	6	750	3000	0.99/ 4.00	1A, 1B, 2A, 2C	E	-	25	-	-	Checkout AIM and facility. Design injector locations	Test was aborted when engine inlet unstart was observed three seconds after initiation of fuel injection. The engine unstart was result of injecting excessive fuel, caused by malfunction of facility control valve. Inspection of the unit revealed that the coolant leak on the spike assembly had progressed, and repair was necessary.
25	36	5/24	6	750	3000	0.99/ 4.00	1A, 1B, 2A, 2C	E	2	19	1	38	Demonstrate operation with design injector location and determine auto ignition limit	First good run with design injector locations. Auto ignition obtained at ϕ = 0.55; first stage did not light until second stage fuel added. Overall ϕ ramped to 1.0 with first stage ϕ held at 0.24.
26	37	5/30/73	6	750	3000	0.99/ 4.00	-	E	-	-	-	-	Determine effect of first stage ϕ on combustor performance	Test aborted due to malfunction of the steam ejector system
	38	5/30	6	750	3000	0.99/ 4.00	1A, 1B, 2A, 2C	E	-	47	-	26	Determine effect of first stage ϕ on combustor performance	Test aborted when inlet unstarted. Malfunction of the facility fuel control valve resulted in injecting excessive fuel into injector 2C. 3 small cracks in spike skin in region of ignitors found in post run inspection. Cracks repaired to prevent water leak into combustor.
	39 thru 48	-	-	-	-	-	-	E	-	-	-	-	Purge system calibration test	
27	49	10/4/73	6	750	3000	-	-	E	-	-	-	-	Combustor optimization	TAFP
	50	10/5/73	6	750	3000	-	-						Combustor optimization	TAFP
	51	10/5/73	6	750	3000	0.99/ 4.00	1A, 1B, 2A, 2C	E	2	39	2	09	Combustor optimization	Fuel control problems encountered.
28	52	10/10/73	6	750	3000	0.99/ 4.00	1A, 1B, 2C, 4	E	1	21	-	50	Combustor optimization	Investigating performance improvement due to injecting fuel closer to inlet. Inlet unstarted at overall ϕ of .83.
	53	10/10	-	-	-	-	-	E	-	-	-	-	Purge system calibration test. Evacuated test cell.	
29	54	10/11/73	6	750	3000	0.99/ 4.00	1A, 1B, 2A, 2C	E	3	04	2	13	Combustor optimization	Attempt to determine effect of first stage ϕ and thrust on performance. Auto ignition obtained at ϕ = .54. Data taken with ignitors on and off to determine effect on performance. Inspection of unit revealed excessive coolant leak at spike/ignitor body interface. Repair necessary. Tunnel operating procedure modified to reduce water ingestion into AIM wall pressure taps.
	55	10/17/74	-	-	-	-	-	E	-	-	-	-	Purge system calibration evacuated test cell	
30	56	11/2/73	6	750	3000	-	-	E	-	-	-	-	Combustor optimization	Effect of fuel split between 1st and second stage injectors at overall ϕ = 1.0 investigated. Also all second stage fuel added from innerbody side (system 2C). Fuel system purges turned off to determine effect on combustor wall pressure distribution. Found thrust measurement affected by thermal expansion of fuel manifold 1B. Inlet unstarted at overall ϕ of 1.0 with first stage ϕ = 0.36. Cavity pressure tap PA2 repaired for this run. Encountered fuel control problems.

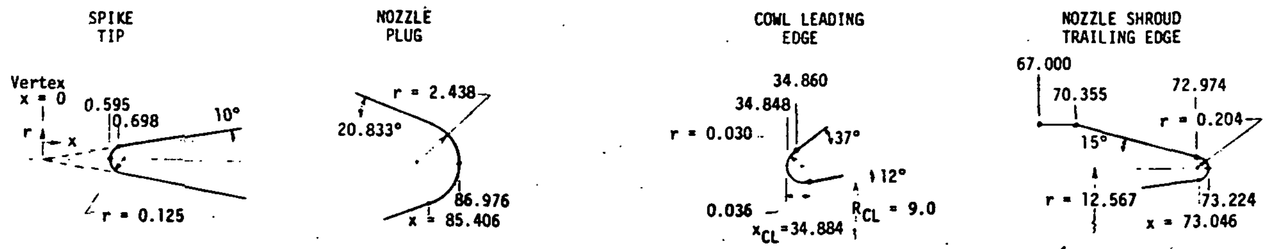
Table 2. - Continued.

Run No.	Reading No.	Date	Inlet Condition: Mach No.	Inlet Condition: P_{TO}, Psia	Inlet Condition: T_{TO}, °R	Inlet Spike Position, Δx, in.	Fuel Injectors Used	Tunnel Config.	Time: Run Min	Time: Run Sec	Time: Useful Min	Time: Useful Sec	Objective of Test	Comments
	57	11/2/73	6	750	3000	0.99/ 4.00	1A, 1B, 2A 2C	E	-	-	-	-		
	58	11/7/74	-	-	-	-	-	E	-	-	-	-	Purge system calibration	Determine effect of thermal expansion of fuel manifold 1B.
31	59	11/8/73	6	750	3000	-	-		-	-	-	-	Combustor optimization	TAFP
	60	11/8/73	6	750	3000	0.99/ 4.00	1A, 1B, 2A, 2C	E	2	34	2	04	Combustor optimization	Overall φ held constant while amount of fuel from innerbody and outerbody injectors varied. Fuel temperature compensation added to fuel control
32	61	11/13/73	6	750	3000	0.99/ 1.72/ 2.52	1A, 1B, 2A, 2C	E	2	50	2	21	Determine effect of spike position on engine performance	Inlet massflow ratios of 0.81 and 0.58 ran by varying the inlet spike position. AIM wall pressure distribution measured with fuel line purge flow shut off. Reworked section of the innerbody assembly burned and damaged during combustion; damaged section was removed. Operational procedure modified to prevent further damage.
33	62	11/20/73	6	930/ 466	3000			E					Performance test	TAFP
	63	11/21/73	6	930/ 466	3000	0.99/ 4.00	1A, 1B, 2A, 2C		2	59	1	52	Performance test	Tunnel total pressure varied to determine effect of altitude on performance.
34	64	11/28/73	6	750	3000	0.99/ 4.00	1B, 2A, 2C, 3A, 3B	E	3	38	2	35	Subsonic-supersonic combustor mode transition	Transition from subsonic to supersonic combustion mode demonstrated. Inspection of unit revealed coolant was flowing into the 1B fuel manifold and a nickel plated section of the innerbody had blistered. Separation at the spike skirt-spike body has progressed to approximately 1.0 inches. Forward facing step at the interface of the cowl leading edge assembly and the outerbody had progressed to approximately .065 inches. Larger fuel metering venturi installed in fuel system E.
35	65	12/11/73	6	750	3000	4.00	1A, 1B, 2A, 2C	E	2	52	1	44	Supersonic combustion with instrumentation rig	Instrumentation rake installed. Rake caused tunnel to unstart at φ = 1.05. Exhaust gas sampling data taken.
	66	12/14	-	-	-	-	-	E	-	-	-	-	Purge system calibration	TAFP
	67	12/14	-	-	-	-	-		-	-	-	-	Purge system calibration	N_2 purge force calibration with cell evacuated.
36	68	12/14/73	6	750	3000	-	-		-	-	-	-		Time of steady state fuel flow increased to 20 seconds to allow gas sampling data to stabilize.
	69	12/14/73	6	750	3000	4.00	1A, 1B, 2A, 2C	E	3	20	2	17	Supersonic combustion	One tunnel unstart experienced near end of run. Several tunnel unstarts prevented by shutting off fuel. Incipient unstart detected by monitoring luminescent normal shock position in T.V. view of tunnel.
37	70	12/19/73	6	750	3000	-	-	E	-	-	-	-	Determine effects of angle of attack	Test terminated prematurely due to frozen vent valve.
	71	12/19/73	6	750	3000	4.00	1A, 1B, 2A, 2C		3	56	2	29		Cowl leading edge assembly removed after this run to remove facing step noted after reading 64.
	72												Purge system calibration	Calibration with 1B fuel injector manifold heated test cell evacuated.
47	73, 74, 75	1/22/74	7	1000	3200	-	-	F	-	-	-	-	Mach 7 facility check-out	Test aborted due to facility problems (TAFP)
	76	1/23/74	7	1000	3200	-	-	F	-	-	-	-	Mach 7 facility check-out	TAFP
	77	1/23/74	7	1000	3200	2.57	-	F	2	-	-	-	Mach 7 facility check-out	Attempt to start tunnel at Mach 7 unsuccessful. Secondary steam ejector used; wedge nozzle pressure varied; inlet spike assembly translated.
48	78	1/25/74	7	1000	3500	2.57	-	G	2	-	-	-	Mach 7 facility check-out	Test aborted while attempting tunnel start. TAFP. Unusual amount of carbon dust deposited on AIM.
49	79	2/15/74	7	1000	3100	-	-	G1	-	-	-	-	Facility check-out	AIM moved aft 5.5 inches.
	80	2/15/74	7	1000	3100	2.57	-	G1	-	-	-	-	Facility check-out	TAFP (dewar water system frozen).
	81	2/20/74	7	1000	3300	2.57	2A, 2C	G2	2	38	-	-	Facility check-out	Blowout doors installed in tunnel closure. Tunnel started when wedge nozzle pressure reduced. Tunnel unstarted when combustor lit. Restart not obtained due to change in wedge nozzle inlet pressure.
50	82	2/22/74	7	1000	3300	-	-	G2					Facility check-out	TAFP. Seal around outer cowl body support damaged.
	83	2/22/74	7	1000	3300	2.57	-	G2	2	05	-	-	Facility check-out	Tunnel start not obtained.
51	84, 85, 86	2/28/74	7	1000	3300	-	-	G2	-	-	-	-	Facility check-out	TAFP
	87	2/28/74	7	1000	3300	2.57	1A, 1B, 2A, 2C		2	46	1	30	Facility check-out	Tunnel nozzle started. Unstarted at φ ~ 0.8

Table 2. - Concluded.

Run No.	Reading No.	Date	Inlet Condition: Mach No.	Inlet Condition: P_{T0}, Psia	Inlet Condition: T_{T0}, °R	Inlet Spike Position, Δx, in.	Fuel Injectors Used	Tunnel Config.	Time, Run: Min	Time, Run: Sec	Time, Useful: Min	Time, Useful: Sec	Objective of Test	Comments
52	88	2/28	7	1000	3100	2.57	1A, 1B, 2A, 2C	F	2	45	1	31	Combustion evaluation	First successful Mach 7 run. Tunnel closure removed. Diffuser seal repaired. Effect of fuel injection location investigated. Row 2 ignitors on. Outer cowl body support damaged by carbon particles in tunnel flow due to failure of carbon part in facility heater. Shroud inlet pressure rake hit and damaged. Repaired outer cowl body support and water cooled protective wedge installed. Coolant leak at the interface of spike skirt and spike body noted at angular location 270° in addition to leak at 180 degrees noted in Rdg 64. Leak at 180° progressed to approximately 1.25 inches. Cowl leading edge tip radius and spike tip damaged by particles. Damaged areas reworked.
53	89	3/15/74	7	1000	3000	2.57	1A, 1B, 2A, 2C, 4	F	3	-	2	02	Combustor optimization	Performance measured with various fuel injection schemes. T_{T0} varied during run. Ignitors on. Test terminated prematurely due to failure of transducer in fuel control causing fuel control valve to fully open. Abnormal amount of carbon dust observed in tunnel flow. Cowl leading edge tip radius and spike tip again damaged. Tip section repaired.
54	90	3/8/75	7	1000	3000	2.57	1A, 1B, 1C, 4	F	3	09	1	16	Combustor optimization	Second stage fuel injection closer to inlet (injectors 1C, 4). Inlet unstarts encountered.
55	91	3/12/74	7	1000	3000	2.57	1A, 1B, 2C, 4	F	2	52	1	32	Effect of angle of attack	Tunnel start improved at angle of attack. Tunnel started at P_{T0} = 850 psia. 3 inlet unstarts encountered due to excessive 1st stage fuel. Total coolant leak into combustor estimated to be 5.0 gpm.
56	92	3/18/74	7	1000	2900	2.57	1A, 1B, 2C, 4	F	3	50	2	30	Combustor performance with instrumentation rake installed.	Instrumentation rake blockage had adverse effect on tunnel start. Inlet spike stroked twice to start tunnel. Oxygen content of tunnel flow varied while AIM exhaust gas sampling data taken.
57	93	3/27/74	5	415	2210	4.0	1A, 1B, 2A, 3A, 3B	F	0	85	-	-	Facility check-out	First Mach 5 run. Subsonic combustion data obtained. Run terminated prematurely (TAFP).
58	94	3/28/74	5	(a) 415 (b) 300 (c) 206	2210 3000 2210	4.00 4.00 4.00	1A, 1B, 2A, 3A, 3B 1A, 1B, 2A, 3A, 3B 1A, 1B, 2A, 3A, 3B	F	2	25	2	01	Combustor optimization	Subsonic and supersonic combustion and transition demonstrated. Four unstarts experienced, three unstarts attributed to high cell pressure, one to injecting excessive fuel intentionally into the AIM. More carbon in tunnel flow. Cowl leading edge and spike tip damaged. Both reworked.
59	95	3/29/74	5	415 300 206	2210 3000 2210	4.00 4.00 4.00	1A, 1B, 2A, 2C 1A, 1B, 2A, 2C 1A, 1B, 2A, 2C	F	3	41	3	20	Combustor optimization	All comments made for Rdg 94 applicable for this run, except combustion was limited to supersonic combustion mode. Four engine unstarts experienced. Three unstarts were attributed to facility conditions and the other to programmed to determine inlet unstart limit.
60	96	4/15	5	415 300 206	2210 3000 2210	4.00 4.00 4.00	1A, 1B, 2A, 3A, 3B	F					Evaluate effects of angle of attack	Subsonic and supersonic combustion and transition demonstrated at angle of attack. Intentional engine unstart obtained when excessive fuel was injected in supersonic combustion mode.
61	97	4/22	5	206/415	2210	4.00	2A, 3A, 3B	F					Combustor performance with instrumentation rake installed	Combustor exit flow conditions surveyed. Gas sampling data taken. Blockage of instrumentation rake had adverse effect on tunnel operation.

Table 3. - AIM aerodynamic coordinates
(Mach 6 cowl position, x_{CL} = 34.844 in.)



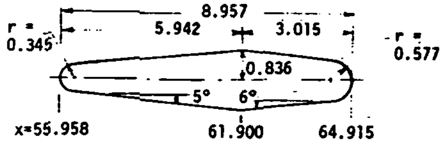
a) Centerbody

x, in.	r, in.
0.595	0.0 90°
0.698	0.123 } st. line
18.360	3.237 } 10°
19.304	3.411
20.443	3.633
21.691	3.885
22.830	4.122
23.850	4.338
25.875	4.782
26.766	4.985
27.900	5.256
28.904	5.518
29.655	5.726 } 15.819°
30.360	5.926 }
32.760	6.660
34.080	7.140 } 22.0°
37.710	8.607 }
38.070	8.734
38.538	8.874
38.826	8.942
39.132	9.000
39.780	9.096
40.500	9.180 - 5.645° Throat
42.000	9.318
43.400	9.415
44.000	9.452
45.000	9.518
46.000	9.578
47.000	9.624
47.600	9.650
48.400	9.670 } 0°
55.760	9.670 } End of spike; step } 0°
55.760	9.406 } } 0°
61.900	9.406 Thermal throat } 0°
65.740	9.406 } 0°
67.553	9.072 } 20.833°
85.406	2.278 }
86.976	0.0 90°

b) Outerbody

x, in.	r, in.		
40.894	11.611		External
36.750	10.103		External
36.250	9.975		External
36.000	9.808		External
35.750	9.685		External
35.437	9.487	37°	External
34.860	9.053	37°	External
34.848	9.029	90°	Internal
34.884	9.000	12°	Internal
35.397	9.104		Internal
35.874	9.192	10°	Internal
36.171	9.241		Internal
36.414	9.278	8°	Internal
36.765	9.322		Internal
37.494	9.398	5.645°	Internal
40.500	9.695	5.645°	Internal
40.894	9.720	5.645°	Internal
41.894	9.810		Internal
42.894	9.890		Internal
43.894	9.960		Internal
46.294	10.132		Internal
55.760	10.873		Internal
57.000	10.955		Internal
58.000	11.000		Internal
58.700	11.022		Internal
61.900	11.022	Thermal throat	Internal
65.980	11.022		Internal
66.220	11.042		Internal
66.740	11.132		Internal
67.740	11.348		Internal
68.780	11.572		Internal
69.740	11.773		Internal
70.820	11.989		Internal
71.660	12.146		Internal
72.260	12.249		Internal
72.920	12.349		Internal
72.980	12.357		Internal
73.046	12.365		Internal
73.224	12.567	90°	Internal
72.974	12.791	15°	External
70.355	13.493	15°	External
67.000	13.493		External

c) Internal struts (6)



(d) Cowl lip design positions

	x_{CL}, in.	Δx, in.	x_{CL}/R_{CL}
Close off	39.150	0.0	4.350
Inlet start	38.160	0.990	4.240
Mach 8	36.990	2.160	4.110
Mach 7	36.270	2.880	4.030
Mach 4 - 6	34.884	4.266	3.876

Table 4. - HRE/AIM Instrumentation (obtained from ref. 5).

(a) Coding for instrumentation list.

The code for the instrumentation listed in the "Identification" column is as follows: Sample, S-P-14.492-0°11'-90-3 (A-B-C-D-E-F).

"A" designates the component on which the instrumentation is located:

S = inlet spike assembly

I = innerbody assembly

NP = nozzle plug assembly

CO = cowl leading edge assembly (outside)

C = cowl leading edge assembly (combustor side)

O = outerbody

N = nozzle shroud (combustor side)

NO = nozzle shroud (outside)

CE = combustor exit

EF = engine airflow-metering duct

F = fluids

"B" designates type of instrumentation

P = pressure

T = temperature

"C" designates the location of the instrumentation in terms of station, with the inlet spike assembly positioned for testing at Mach 6 condition.

"D" designates the angular location in degrees and minutes.

"E" designates position of the pressure pickup with respect to airflow in degrees, or, if the instrument is a temperature sensor, it designates the thermocouple:

CA = chromel alumel

CuC = copper constantan

P/rh = platinum-platinum/rhodium

"F" designates the leg through which the leads are brought out.

An "X" anywhere in the Identification Code indicates that the parameter was not applicable.

xxx/yy in the "Reading No." column indicates the Channel No. (xxx) on which the parameter was recorded, and the rated capacity (yy) of the transducer used.

The "N/U" Code in the "Reading No." Column indicates channels that were not used.

"LeRC Sys" - recorded on separate system, therefore no channel number.

Table 4. - Continued.

(b) Instrumentation list.

Measurement Number	Identification	Reading Number																							
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-S	S-P - 0.595 - 0 - 0-3	121/25		•																					
2-S	S-P - 14.492 - 0°11' - 90-3	N/U		•																					
3-S	S-P - 14.483 - 271°8' - 90-3	123/10				123/10																			→
4-S	S-P - 14.473 - 180°5' - 90-3	N/U		•																					
5-S	S-P - 14.4 - 90 - 90	Not Routed																							
6-S	S-P - 30.695 - 359°36' - 90-3	125/10																							
7-S	S-P - 35.085 - 359°34' - 90-3	126/10																							
8-S	S-P - 35.071 - 269°35' - 90-3	127/10																							
9-S	S-P - 35.071 - 179°28' - 90-3	259/25																							
10-S	S-P - 35.079 - 89°23' - 90-3	260/10		•																					
11-S	S-P - 35.580 - 359°32' - 90-3	261/10																							
12-S	S-P - 36.077 - 359°34' - 90-3	262/10																							
13-S	S-P - 36.487 - 359°30' - 90-3	263/10																							
14-S	S-P - 36.476 - 269°31 - 90-3	264/10																							
15-S	S-P - 36.476 - 179°27 - 90-3	265/25																							
16-S	S-P - 36.482 - 89°29' - 90-3	266/15														266/10									→
17-S	S-P - 36.984 - 359°32' - 90-3	128/10																					128/15		→
18-S	S-P - 37.5 - 0 - 90-3	Not Routed																							
19-S	S-P - 38.0 - 0 - 90-3	Not Routed																							
20-S	S-P - 38.017 - 269°27' - 90-3	122/10																					122/15		→
21-S	S-P - 38.001 - 179°23' - 90	Not Routed																							
22-S	S-P - 38.00 - 270 - 90	Not Routed																							
23-S	S-P - 38.5 - 0 - 90	Not Routed																							
24-S	S-P - 39.024 - 359°25' - 90-4	129/20																					129/25		→
25-S	S-P - 39.011 - 269°25' - 90-4	N/U		•																					
26-S	S-P - 38.996 - 179°23' - 90-4	N/U																							
27-S	S-P - 39.0 - 270° - 90	Not Routed																							
28-S	S-P - 39.497 - 359°24' - 90-4	130/25														130/15							130/25		→
29-S	S-P - 40.027 - 359°24' - 90-4	131/25		•																					
30-S	S-P - 40.023 - 269°28' - 90-4	132/25																							
31-S	S-P - 40.015 - 179°25' - 90-4	267/25									267/50					267/25									→
32-S	S-P - 40.015 - 89°20' - 90-4	133/25		•																					
33-S	S-P - 41-498 - 359°30' - 90-4	134/75														134/25					134/50		134/75		→
34-S	S-P - 42.464 - 359°28' - 90-4	135/75														135/50							135/75		→
35-S	S-P - 43.7 - 0 - 90	Not Routed																							
36-S	S-P - 43.7 - 90 - 90	Not Routed																							
37-S	S-P - 43.7 - 180 - 90	Not Routed																							
38-S	S-P - 43.7 - 270 - 90	Not Routed																							
39-S	S-P - 44.796 - 359°28' - 90-4	136/75														136/50					136/75				→
40-S	S-P - 45.0 - 0 - 90	Not Routed																							
41-S	S-P - 47.315 - 359°28' - 90-4	268/75									268/100					268/50							268/75		→
42-S	S-P - 47.301 - 269°22' - 90-4	137/75														137/50							137/75		→
43-S	S-P - 47.289 - 179°15' - 90-4	138/75														138/50							138/75		→
44-S	S-P - 47.309 - 89°20' - 90-4	139/75														139/50							139/75		→
45-S	S-P - 48.109 - 359°28' - 90-4	269/75									269/100					269/50							269/75		→
46-S	S-T - 24.0 - 359°45' -	Not Routed																							
47-S	S-T - 37.789 - 359°30' - CA-3	303/50mv		•																					
48-S	S-T - 38.017 - 354°35' - CA-3	N/U																							
49-S	S-T - 40.021 - 354°30' - CA-4	305/50mv																							
50-S	S-T - 41.965 - 359°30' - CA-4	306/50mv		•																					
51-S	S-T - 44.796 - 354°27' - CA-4	307/50mv																							
52-S	LVDT (Spike Position)	120/100mv = 4.372 inches				•																			
77-T	Load Cell	277/3000 lb = 20mv				•																			

*Continuous to end

Table 4. - Continued.

(b) Continued

Measurement Number	Identification	31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-I	I-P - 54.519 - 359°49' - 90-3	143/20									143/25	143/50											143/100		
2-I	I-P - 54.529 - 269°49' - 90-3	N/U		N/U	186/50																		186/100		
3-I	I-P - 54.512 - 179°41' - 90-3	141/75														141/50							141/75		
4-I	I-P - 54.514 - 90° 0' - 90-4	N/U		N/U	191/50																		191/100		
5-I	I-P - 56.004 - 0°48' - 90-4	271/75														271/50							271/100		
6-I	I-P - 56.0 - 32°30' - 90	Not Routed																							
7-I	I-P - 56.0 - 178°30' - 90	Not Routed																							
8-I	I-P - 56.0 - 262°30' - 90	Not Routed																							
9-I	I-P - 64.799 - 359°45' - 90-4	270/75														270/20							270/50		
10-I	I-T - 54.0 - 0	Not Routed																							
11-I	I-T - 55.25 - 0	Not Routed																							
12-I	I-T - 60.0 - 0	Not Routed																							
13-I	I-T - 59.979 - 240° 0' - CA-3	308/50 mv	*																						
14-I	I-T - 60.019 - 120° 0' - CA-4	290/50 mv	*																						
15-I	I-T - 64.799 - 354°56' - CA-4	309/50 mv	*																						

*Continuous to end

Measurement Number	Identification	31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-NP	NP-P - 66.640 - 59°54' - 90-4	144/20														144/10							144/25		
2-NP	NP-P - 68.080 - 119°38' - 90-4	145/10																					145/20		
3-NP	NP-P - 69.405 - 180° 8' - 90-4	146/10	*																						
4-NP	NP-P - 70.790 - 240°12' - 90-4	147/10	*																						
5-NP	NP-P - 70.465 - 300°12' - 90-4	148/10	*																						
6-NP	NP-P - 74.550 - 0°10' - 90-4	149/10	*																						
7-NP	NP-P - 77.400 - 60° 0' - 90-4	150/10	*																						
8-NP	NP-P - 81.295 - 120° 8' - 90-4	151/10	*																						
9-NP	NP-P - 84.105 - 180° 5' - 90-4	152/10	*																						
10-NP	NP-P - 86.967 - ℄ - X-4	153/10	*																						
11-NP	NP-T - 68.080 - 124°15' - CA-3	310/50 mv	*																						
12-NP	NP-T - 70.790 - 245°12' - CA-3	311/50 mv	*																						
13-NP	NP-T - 74.45 - 5	Not Routed																							
14-NP	NP-T - 81.300 - 125° 8' - CA-4	312/50 mv	*																						

*Continuous to end

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
		READING NUMBER																							
1-CO	CO-P - 35.525 - 83° 2' - 90-4	N/U	●																						
2-CO	CO-P - 35.514 - 172°58' - 90-4	155/25											N/U	155/25	155/15							N/U	155/15	125/20	N/U
3-CO	CO-P - 35.544 - 262°56' - 90-3	N/U		N/U	156/15									156/15									156/15	156/20	
4-CO	CO-P - 35.519 - 352°59' - 90-3	157/25												157/25		N/U	N/U	N/U	N/U	157/25			157/15		
5-CO	CO-P - 37.040 - 83° 4' - 90-4	N/U		N/U	158/10									158/10						158/10			158/10		
6-CO	CO-P - 37.044 - 173° 5' - 90-4	159/15												159/15									159/15		
7-CO	CO-P - 37.047 - 263° 5' - 90-3	N/U		N/U	160/10									160/10		N/U	N/U	N/U	N/U	160/10			160/10		
8-CO	CO-P - 37.044 - 353° 2' - 90-3	161/15												161/15			161/10			161/10			161/10		
9-CO	CO-P - 39.008 - 83° 7' - 90-4	N/U		N/U	162/10									162/10		N/U	N/U	N/U	N/U	162/10			162/10		
10-CO	CO-P - 39.004 - 173° 7' - 90-4	163/15												163/15									163/15		
11-CO	CO-P - 39.004 - 263° 1' - 90-3	N/U		N/U	164/10									164/10									164/10		
12-CO	CO-P - 39.008 - 353° 6' - 90-3	165/15												165/15		165/10							165/10		
13-CO	CO-P - 40.509 - 83° 6' - 90-4	N/U		N/U	166/10						166/15			166/15		N/U	N/U	N/U	N/U	166/15			166/15		
14-CO	CO-P - 40.507 - 173° 6' - 90-4	167/15												167/15		167/10						N/U	167/10		N/U
15-CO	CO-P - 40.504 - 263° 4' - 90-3	Not Routed																							
16-CO	CO-P - 40.500 - 353° 5' - 90-3	169/15												169/15		N/U	N/U	N/U	N/U	169/15		N/U	169/15	169/20	N/U
17-CO	CO-P - 40.004 - 210° 2' - 90-3	170/15												170/15						170/15			170/15		
18-CO	CO-P - 40.360 - 210° 7' - 75-3	N/U		N/U	171/10									171/10						171/10			171/10		
19-CO	CO-P - 40.680 - 210° 3' - 110-3	N/U		N/U	172/10									172/10						172/10			172/10		
20-CO	CO-P - 40.249 - 330° 1' - 135-3	173/15												173/15						173/15			173/15		
21-CO	CO-P - 40.654 - 330° 0' - 110-3	N/U		N/U	174/10									174/10		N/U	N/U	N/U	N/U	174/10		N/U	174/10		N/U
22-CO	CO-P - 40.004 - 0° 5' - 110-4	N/U		N/U	175/25																				
23-CO	CO-P - 40.364 - 359°57' - 75-3	N/U		N/U	176/10											N/U	N/U	N/U	N/U	176/10				176/15	
24-CO	CO-P - 40.655 - 0° 3' - 110-3	177/15												177/15		N/U	N/U	N/U	N/U	177/15		N/U	177/15		N/U
25-CO	CO-P - 40.209 - 180°10' - 135-4	178/15									178/20		N/U	178/20		N/U	N/U	N/U	N/U	178/20		N/U	178/20		N/U
26-CO	CO-P - 40.656 - 180° 5' - 110-4	179/15			179/25								N/U	179/25		N/U	N/U	N/U	N/U	179/25		N/U	179/25		N/U
31-C	C-P - 35.514 - 359°58' - 90-3	180/50															180/25						180/50		
32-C	C-P - 36.0 - 0 - 90	181/50															181/25						181/50		
33-C	C-P - 36.685 - 0° 8' - 90-4	182/50															182/25						182/50		
34-C	C-P - 36.694 - 180°10' - 90-3	183/50															183/25						183/50		
35-C	C-P - 37.034 - 0° 8' - 90-4	184/50															184/25						184/50		
36-C	C-P - 37.044 - 90°10' - 90-4	185/50															185/25						185/50		
37-C	C-P - 37.049 - 180° 7' - 90-3	N/U	●																						
38-C	C-P - 37.034 - 270° 7' - 90	Damaged																							
39-C	C-P - 37.544 - 0°10' - 90-4	187/50															187/25						187/50		
40-C	C-P - 38.044 - 0°10' - 86-4	188/50															188/25						188/50		
41-C	C-P - 38.044 - 90°10' - 86-4	189/50															189/25						189/50		
42-C	C-P - 38.049 - 180° 7' - 86-4	190/50															190/25						190/50		
43-C	C-P - 38.041 - 210° 7' - 86-3	N/U	●																						
44-C	C-P - 38.514 - 0° 5' - 94-4	192/50															192/25						192/50		
45-C	C-P - 39.014 - 0° 5' - 94-4	193/50															193/25						193/50		
46-C	C-P - 39.024 - 90° 7' - 94-4	194/50															194/25				194/50				
47-C	C-P - 39.019 - 180° 4' - 94-	Damaged																							
48-C	C-P - 39.014 - 270° 0' - 94-3	195/50															195/25						195/50		
49-C	C-P - 39.511 - 359° 4' - 94-3	196/50															196/25						196/50		
50-C	C-P - 39.995 - 0° 8' - 90-4	197/50															197/25						197/50		
51-C	C-P - 40.00 - 90° 7' - 90-4	N/U	●																						
52-C	C-P - 39.994 - 180° 7' - 90-3	199/50															199/25						199/50		
53-C	C-P - 40.004 - 270° 5' - 90	Damaged																							
54-C	C-T - 37.044 - 7° 9' - CA-4	314/50 av	●																						
55-C	C-T - 39.014 - 7° 5' - CA-4	315/50 av	●																						
56-C	C-T - 39.954 - 7° 8' - CA-4	316/50 av	●																						
57-C	C-T - 40.0 - 90° - CA	Not Routed																							
58-C	C-T - 40.004 - 180° 7' - CA-3	N/U	●																						
59-C	C-T - 40.000 - 277° 4' - CA-3	292/50 av							N/U																N/U
60-CO	CO-T - 36.544 - 353° 2' - CA-3	313/50 av	●																						
61-CO	CO-T - 38.504 - 0 - CA	Not Routed																							

*Continuous to end

E-88720

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	Reading Number 31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-0	0-P - 41.06 - 0°0' - 110-4	201/75															201/50								
2-0	0-P - 41.06 - 180°0' - 110-4	272/75															272/50						272/75		
3-0	0-P - 41.06 - 210°0' - 110-3	N/U		N/U	228/75												228/50								
4-0	0-P - 41.06 - 330°0' - 110-3	N/U					N/U	200/75									200/50								
5-0	0-P - 43.786 - 1°0' - 90-4	202/75									202/100						202/50						202/75		
6-0	0-P - 43.786 - 90°0' - 90-4	N/U					N/U	203/75			203/100						203/50						203/75		
7-0	0-P - 43.731 - 180°0' - 90-3	204/75															204/50						204/75		
8-0	0-P - 43-786 - 270°0' - 90-3	N/U					N/U	205/75									205/50						205/75		
9-0	0-P - 45.222 - 1°0' - 90-4	206/75															206/50						206/75		
10-0	0-P - 47.016 - 1°0' - 90-4	273/75									273/100						273/50						273/75		
11-0	0-P - 49.005 - 1°0' - 90-4	207/75															207/50						207/75		
12-0	0-P - 49.020 - 90°0' - 90-4	N/U					N/U	219/50															219/75		
13-0	0-P - 49.003 - 180°0' - 90-4	N/U	*																						
14-0	0-P - 49.005 - 270°0' - 90-3	N/U					N/U	198/50			198/15	598/75					198/50						198/75		
15-0	0-P - 49.506 - 0° - 90-3	N/U																							
16-0	0-P - 50.405 - 0° - 90-4	208/75															208/50						208/75		
17-0	0-P - 50.411 - 90° - 90-4	N/U					N/U	221/50				221/75					221/50						221/75		
18-0	0-P - 50.411 - 18° - 90-4	N/U																							
19-0	0-P - 50.411 - 270° - 90-3	N/U																							
20-0	0-P - 50.505 - 1° - 90-4	N/U																							
21-0	0-P - 52.506 - 0° - 90-3	209/75															209/50						209/100		
22-0	0-P - 53.008 - 1° - 90-4	210/75															210/50						210/100		
23-0	0-P - 53.006 - 90° - 90-4	N/U					N/U	211/25			211/30						211/50						211/100		
24-0	0-P - 53.006 - 180° - 90-4	212/75	N/U																						N/U
25-0	0-P - 52.993 - 270° - 90-3	N/U					N/U	212/25			212/30						212/50						212/100		
26-0	0-P - 54.510 - 0° - 90-3	214/75															214/50						214/100		
27-0	0-P - 56.496 - 0° - 90-4	215/75															215/50						215/100		
28-0	0-P - 57.451 - 0° - 90-3	N/U					N/U	213/25			213/30						213/50						213/100		
29-0	0-P - 58.473 - 0° - 90-4	216/75															216/50						216/75		
30-0	0-P - 59.474 - 0° - 90-3	N/U																							
31-0	0-P - 60.476 - 0° - 90-4	217/50										217/75					217/25						217/75		
32-0	0-P - 61.870 - 0° - 90-3	218/50										218/75					218/25						218/75		
33-0	0-P - 51.881 - 110° - 90-4	N/U																							
34-0	0-P - 61.881 - 180° - 90-3	220/75															220/50						220/75		
35-0	0-P - 61.874 - 290° - 90-3	N/U																							
36-0	0-P - 62.976 - 0° - 90-4	N/U																							
37-0	0-P - 63.974 - 0° - 90-4	N/U																							
38-0	0-P - 64.975 - 1° - 90-4	222/20			222/50												222/15						222/75		
39-0	0-T - 41.978 - 0° - CA-3	317/50mv																							
40-0	0-T - 42.581 - 0° - CA-3	318/50mv																							
41-0	0-T - 43.786 - 359° - CA-4	319/50mv																							
42-0	0-T - 45.234 - 359° - CA-	320/50mv																							
43-0	0-T - 46.507 - 0° - CA-3	289/50mv	*																						
44-0	0-T - 46.510 - 90° - CA-4	293/50mv																							
45-0	0-T - 46.520 - 180° - CA-3	294/50mv																							
46-0	0-T - 46.491 - 270° - CA-3	295/50mv																							
47-0	0-T - 47.016 - 359° - CA-3	321/50mv																							
48-0	0-T - 48.0 - 0° - CA-	Not Routed																							
49-0	0-T - 49.005 - 359° - CA-3	322/50mv	*																						
50-0	0-T - 50.005 - 0° - CA-3	323/50mv																							
51-0	0-T - 50.014 - 90° - CA	Not Routed																							
52-0	0-T - 50.014 - 180° - CA-4	296/50mv	*																						

*Continuous to end

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
53-0	0-T - 50.010 - 270° - CA-	Not Routed																							
54-0	0-T - 51.505 - 359° - CA-3	324/50mv																							
55-0	0-T - 52.010 - 0° - CA-4	325/50mv	→	→ *																					
56-0	0-T - 52.996 - 359° - CA-3	326/50mv																							
57-0	0-T - 54.0 - 0° - CA-	Not Routed																							
58-0	0-T - 55.0 - 0° - CA-	Not Routed																							
59-0	0-T - 56.00 - 0° - CA-3	327/50mv																							
60-0	0-T - 56.00 - 120° - CA-3	297/50mv																							
61-0	0-T - 56.00 - 240° - CA-4	298/50mv																							
62-0	0-T - 57.010 - 0° - CA-3	328/50mv																							
63-0	0-T - 57.970 - 0° - CA-3	329/50mv																							
64-0	0-T - 58.969 - 0° - CA-3	330/50mv																							
65-0	0-T - 59.976 - 0° - CA-4	331/50mv																							
66-0	0-T - 60.974 - 0° - CA-4	332/50mv	→	→ *																					
67-0	0-T - 62.474 - 0° - CA-4	333/50mv																							
68-0	0-T - 62.474 - 120° - CA-3	299/50mv																							
69-0	0-T - 62.474 - 240° - CA-4	300/50mv																							
70-0	0-T - 63.970 - 0° - CA-3	334/50mv																							
71-0	0-T - 64.475 - 0° - CA-4	335/50mv																							
72-0	0-T - 65.224 - 359° - CA-3	336/50mv																							
73-0	0-T - 66.0 - 0° - CA-	Not Routed																							

*Continuous to end

S-89693

Measurement Number	Identification	31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-N	N-P - 66.635 - 298°55' - 80-3	223/20 →															223/10						223/25		→
2-N	N-P - 67.305 - 240° - 78-3	224/15 →		→																					
3-N	N-P - 68.18 - 180°	Not Routed																							
4-N	N-P - 68.800 - 118°49' - 90-3	225/10 →		→ *																					
5-N	N-P - 69.605 - 58°53' - 90-3	N/U →	N/U →	N/U ←	226/10																				→
6-N	N-P - 70.360 - 358°6' - 90-3	227/10																							
7-N	N-P - 71.225 - 299°0' - 90-3	N/U	→	→ *																					
8-N	N-P - 72.320 - 235°5' - 90-3	229/10																							
9-N	N-P - 73.030 - 178°17' - 92.5-4	230/10 →			230/25												230/15								→
10-N	N-P - 73.224 - 0°10' - 188-4	N/U																							
11-N	N-P - 73.224 - 180°11' - 188-3	232/10																							
12-N	N-T - 67.330 - 237°57' - CA-4	301/50mv																							
13-N	N-T - 68.805 - 113°49' - CA-4	302/50 mv	→	→ *																					
14-N	N-T - 70.360 - 353°51' - CA-4	337/50mv																							
15-N	N-T - 72.300 - 240°7' - CA-4	338/50mv																							

*Continuous to end

S-89694

Measurement Number	Identification	31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
16-NO	NO-P - 70.921 - 180°12' - 90-4	233/10										→	N/U	233/10							→	N/U	233/10	→	N/U
17-NO	NO-P - 70.917 - 330°8' - 90-3	234/10										→	N/U	234/10							→	N/U	234/10	→	N/U
18-NO	NO-P - 71.040 - 134°53' - 90-4	235/10										→	N/U	235/10							→	N/U	235/10	→	N/U
19-NO	NO-P - 71.054 - 150°10' - 90-4	N/U																→	N/U	154/15					→
20-NO	NO-P - 71.053 - 155°35' - 90-4	237/10										→	N/U	237/10							→	N/U	237/10	→	N/U
21-NO	NO-P - 71.978 - 0°11' - 90-4	238/10										→	N/U	238/10							→	N/U	238/10	→	N/U
22-NO	NO-P - 71.965 - 180°12' - 90-4	239/10										→	N/U	239/10							→	N/U	239/10	→	N/U
23-NO	NO-P - 71.965 - 183°43' - 90-3	N/U																→	N/U	168/15					→
24-NO	NO-P - 71.960 - 192°53' - 90-3	N/U		→ *																					
25-NO	NO-P - 71.955 - 201°13' - 90-3	242/10										→	N/U	242/10							→	N/U	242/10	→	N/U
26-NO	NO-P - 71.945 - 210°13' - 90-3	N/U		→																					
27-NO	NO-P - 71.925 - 219°3' - 90-3	243/10	→	N/U	243/10							→	N/U	243/10							→	N/U	243/10	→	N/U
28-NO	NO-P - 71.920 - 227°53' - 90-3	N/U		→ *																					
29-NO	NO-P - 71.920 - 236°41' - 90-3	245/10											→	245/10								→	245/10		→
30-NO	NO-P - 71.957 - 330°8' - 90-3	246/10											→	246/10								→	246/10		→
31-NO	NO-P - 71.971 - 340°19' - 90-4	247/10											→	247/10								→	247/10		→
32-NO	NO-P - 71.970 - 346°56' - 90-4	N/U		→ *																					
33-NO	NO-P - 71.970 - 353°35' - 90-4	249/10											→	249/10								→	249/10		→
34-NO	NO-P - 72.430 - 150°11' - 60-4	250/10											→	250/10								→	250/10		→

*Continuous to end

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Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	READING NUMBER 31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
35-OC	OCB - P - 66.34 - X - 180-X	251/10	} → *																						
1-F	S-P - 1A - 172 - X-3	N/U	}																						
2-F	S-P - 1A - 25 - X-3	244/200 →						73/300 →																	→
3-F	S-P - 1C - 175 - X-3	N/U →					N/U	74/300 →																	→
4-F	S-P - 1C - 25 - X-3	N/U →		*																					
5-F	S-P - 2C - 175 - X-4	N/U ←	123/500 →		123/500	231/500	231/500	75/500 →																	→
6-F	S-P - 2C - 25 - X-4	N/U ←	124/500 →		124/500 →																				→
7-F	1-P - 3B - 95 - X-4	N/U →					N/U	76/300 →																	→
8-F	1-P - 3B - 275 - X-4	N/U →		*																					
9-F	0-P - 1B - 90 - X-4	240/200 →						77/300 →																	→
10-F	0-P - 1B - 270 - X-3	241/200 →		*																					
11-F	0-P - 4 - 90 - X-4	N/U →					N/U	78/300 →																	→
12-F	0-P - 4 - 270 - X-X	Not Routed																							
13-F	0-P - 2A - 90 - X-X	Not Routed																							
14-F	0-P - 2A - 270 - X-3	N/U →					N/U	79/500 →																	→
15-F	0-P - 3A - 90 - X-4	N/U →	N/U	123/500 →				80/300 →																	→
16-F	0-P - 3A - 270 - X-3	N/U →	N/U	124/500 →																					→
17-F	S-T - 1A - 188 - CA-3	53/50																							
18-F	S-T - 1A - 30 - CA-3	54/50																							
19-F	S-T - 1C - 180 - CA-4	55/50																							
20-F	S-T - 1C - 30 - CA-4	56/50																							
21-F	S-T - 2C - 180 - CA-3	57/50																							
22-F	S-T - 2C - 30 - CA-3	58/50																							
23-F	1-T - 3B - 90 - CA-4	59/50																							
24-F	1-T - 3B - 270 - CA-4	60/50																							
25-F	0-T - 1B - 90 - CA-4	61/50	} →	*																					
26-F	0-T - 1B - 270 - CA-3	62/50																							
27-F	0-T - 2A - 90 - CA-4	63/50																							
28-F	0-T - 2A - 270 - CA-3	64/50																							
29-F	0-T - 4 - 90 - CA-4	65/50																							
30-F	0-T - 4 - 270 - CA-3	66/50																							
31-F	0-T - 3A - 90 - CA-4	67/50																							
32-F	0-T - 3A - 270 - CA-3	68/50																							
33-F	S-P - IGN O_2 - X - X-3	248/300																							
34-F	S-P - IGN O_2	Not Routed																							
35-F	0-P - IGN O_2 - X - X-4	236/300 →																					236/500 →		→
36-F	0-P - IGN O_2	Not Routed																							
37-F	S-P - IGN H_2 - X - X-4	252/300 →																					252/500 →		→
38-F	S-P - IGN H_2	Not Routed																							
39-F	0-P - IGN H_2 - X - X-4	253/300 →																					253/500 →		→
40-F	0-P - IGN H_2	Not Routed																							
41-F	S-P - H_2O IN (TIP) - X - X-4	Visually Monitored																							
42-F	1-P - H_2O IN (TIP) - X - X-4	Visually Monitored																							
43-F	ST-P - H_2O IN (LE) - X - X-4	Visually Monitored																							
44-F	ST-P - H_2O IN (SIDE) - X - X-4	Visually Monitored																							
45-F	0-P - H_2O IN - X - X-3	Visually Monitored																							

*Continuous to end

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
46-F	OC-P - H_2O IN (A) - X - X-4																								
47-F	OC-P - H_2O IN (B) - X - X-4																								
48-F	OC-P - H_2O IN (C) - X - X-4																								
49-F	OC-P - H_2O IN (D) - X - X-4																								
50-F	S-P - H_2O OUT (TIP) - X - X-4																								
51-F	1-P - H_2O OUT - X - X-3																								
52-F	ST-P - H_2O OUT (LE) - X - X-3	Visually Monitored																							
53-F	ST-P - H_2O OUT (SIDE) -X-X-3																								
54-F	O-P - H_2O OUT -X-X-3																								
55-F	OC-P - H_2O OUT (A) - X - X-3																								
56-F	OC-P - H_2O OUT (B) - X - X-3																								
57-F	OC-P - H_2O OUT (C) - X - X-3																								
58-F	OC-P - H_2O OUT (D) - X - X-3																								
59-F	S-ΔT - H_2O OUT - X - CuC-4	370/ΔSmv												386/Smv											
59-F	S-ΔT - H_2O IN - X- CuC-4													387/Smv											
60-F	1-ΔT - H_2O OUT - X - CuC-3	371/ΔTSmv												370/Smv											
60-F	1-ΔT - H_2O IN - X - CuC-4													371/Smv											
61-F	ST-ΔT - H_2O OUT LE - X - CuC-3	372/ΔTSmv													366/Smv										
61-F	ST-ΔT - H_2O IN LE - X - CuC-3														367/Smv										
62-F	ST-ΔT - H_2O OUT (SIDE) -X-CuC-3	373/ΔTSmv													368/Smv										
62-F	ST-ΔT - H_2O IN (SIDE) -X-CuC-4														369/Smv										
63-F	O-ΔT - H_2O OUT - X - CuC-3	374/ΔTSmv												372/Smv											
63-F	O-ΔT - H_2O IN - X - CuC-3													373/Smv											
64-F	HYD-P - IN - X - X-X	Visually Monitored																							
65-F	HYD-P - OUT - X - X-X																								
66-F	ΔT1B - 40.6 - 3 - CuC-4	375/ΔTSmv												374/Smv											
66-F	ΔT1A - 35.75 - 356 - CuC-3													375/Smv											
67-F	ΔT1B - 40.6 - 181 - CuC-4	376/ΔTSmv												376/Smv											
67-F	ΔT1A - 35.75 - 176 - CuC-3													377/Smv											
68-F	ΔT2D - 55.6 - 357 - CuC-3	377/ΔTSmv													352/Smv										
68-F	ΔT2C - 40.5 - 5 - CuC-4														353/Smv										
69-F	ΔT2D - 55.6 - 177 - CuC-4	378/ΔTSmv												388/Smv											
69-F	ΔT2C - 40.5 - 178 - CuC-4													389/Smv											
70-F	ΔT3F - 66.2 - 356 - CuC-3	379/ΔTSmv													359/Smv										
70-F	ΔT3E - 55.6 - 355 - CuC-3														358/Smv										
71-F	ΔT3F - 66.19 - 176 - CuC-4	380/ΔTSmv													351/Smv										
71-F	ΔT3E - 55.6 - 175 - CuC-4														350/Smv										
72-F	ΔT4H - 72.36 - 356 - CuC-4	381/ΔTSmv												378/Smv											
72-F	ΔT4G - 66.68 - 356 - CuC-4													379/Smv											
73-F	ΔT4H - 72.36 - 176 - CuC-4	382/ΔTSmv												380/Smv											
73-F	ΔT4G - 66.68 - 176 - CuC-4													381/Smv											

READING NUMBER spans columns 31–97.

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Table 4. - Continued.

(b) Continued

Measurement Number	Identification	31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
		READING NUMBER																							
74-F	ΔT5J - 40.0 - 4 - CuC-3	383/ΔT5mv													361/5mv										
74-F	ΔT5K - 47.84 - 357 - CuC-3														363/5mv										
75-F	ΔT5J - 40.0 - 184 - CuC-4	384/ΔT5mv													354/5mv										
75-F	ΔT5K - 47.84 - 181 - CuC-4														355/5mv										
76-F	ΔT6M - 50.8 - 358 - CuC-3	385/ΔT5mv													364/5mv										
76-F	ΔT6L - 48.58 - 357 - CuC-3														365/5mv										
77-F	ΔT6M - 50.8 - 178 - CuC-4	386/ΔT5mv													356/5mv										
77-F	ΔT6L - 48.58 - 181 - CuC-4														357/5mv										
78-F	ΔT7P - 66.10 - 356 - CuC-3	387/ΔT5mv												382/5mv											
78-F	ΔT7N - 50.8 - 354 - CuC-3													383/5mv											
79-F	ΔT7P - 66.10 - 176 - CuC-4	388/ΔT5mv												384/5mv											
79-F	ΔT7N - 50.8 - 174 - CuC-4													385/5mv											
80-F	O-ΔT - H_2O OUT - X - X-4	389/ΔT5mv												360/5mv											
80-F	O-ΔT - H_2O IN - X - X-4													362/5mv											
81-F	O-P - H_2O OUT - X - X-3	Visually Monitored																							
82-F	O-P - H_2O IN - X - X-4																								
83-F	I-T - H_2O - 52.8 - 27 - CA-3	390/5mv		*																					
84-F	I-T - H_2O - 57.8 - 30 - CA-4	391/5mv													391/5mv										
85-F	PURGE CAVITY PA-1-X - X - X-3	254/25						254/50																	
86-F	PURGE CAVITY PA-2-X - X - X-3	255/25			255/50																				
87-F	PURGE CAVITY PB-1-X - X - X-3	256/25																							
88-F	PURGE CAVITY PB-2-X - X - X-3	257/25																							
89-F	INNER BODY CAV PRES - X - X-4	258/50																							
90-F	INNER BODY CAV TEMP - X-X-CA-	69/5		*																					
91-F	PURGE CAVITY TA1 - X - X - CA-	394/5mv																							
92-F	PURGE CAVITY TA2 - X - X - CA-	395/5mv																							
93-F	PURGE CAVITY TB1 - X - X - CA-	396/5mv																							
94-F	PURGE CAVITY TB2 - X - X - CA-	397/5mv																							
95-F		N/U																							
96-F		N/U																							
97-F		N/U																							
98-F		N/U																							
99-F		N/U																							
100-F	PURGE CAVITY	70/50																							
101-F	PURGE CAVITY	71/50		*																					
102-F	PURGE CAVITY	72/50																							

*Continuous to end

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Table 4. - Concluded.

(b) Concluded

Measurement Number	Identification	Reading Number 65	Reading Number 92	Reading Number 97
ICE	CE-PT - 66.74 - 0 - 00 - X	155/75	155/50	155/75
2	CE-PS - 67.04 - 0 - 13 - X	156/50	156/15	156/50
3	CE-PS - 67.04 - 0 - 109 - X	157/50	157/15	157/50
4	CE-PS - 67.04 - 0 - 193 - X	158/50	158/15	158/50
5	CE-PS - 67.04 - 0 - 283 - X	159/50	159/15	159/50
6	CE-PT - 66.74 - 110 - 00 - X	160/75	160/50	160/75
7	CE-PS - 67.04 - 110 - 18 - X	161/50	161/15	161/50
8	CE-PS - 67.04 - 110 - 108 - X	162/50	162/15	162/50
9	CE-PS - 67.04 - 110 - 198 - X	163/50	163/15	163/50
10	CE-PS - 67.04 - 110 - 288 - X	164/50	164/15	164/50
11	CE-PT - 66.74 - 180 - 00 - X	165/75	165/50	165/75
12	CE-PS - 67.04 - 180 - 1 - X	166/50	166/15	166/50
13	CE-PS - 67.04 - 180 - 91 - X	167/50	167/15	167/50
14	CE-PS - 67.04 - 180 - 181 - X	169/50	169/15	169/50
15	CE-PS - 67.04 - 180 - 271 - X	170/50	170/15	170/50
16	CE-PT - 66.74 - 280 - 00 - X	171/75	171/50	171/75
17	CE-PS - 67.04 - 280 - 355 - X	172/50	172/15	172/50
18	CE-PS - 67.04 - 280 - 85 - X	173/50	173/15	173/50
19	CE-PS - 67.04 - 280 - 175 - X	174/50	174/15	174/50
20	CE-PS - 67.04 - 280 - 265 - X	177/50	177/15	177/50
21	CE-PT - 66.74 - 330 - 00 - X	178/75	178/50	178/75
22	CE-PS - 67.04 - 330 - 3 - X	179/50	179/15	179/50
23	CE-PS - 67.04 - 330 - 93 - X	233/50	233/15	233/50
24	CE-PS - 67.04 - 330 - 183 - X	234/50	234/15	234/50
25	CE-PS - 67.04 - 330 - 273 - X	235/50	235/15	235/50
26	CE-G-GS - 30 - X - X	LeRC sys	LeRC	LeRC
27	CE-G-TT - 30 - P/R - X	LeRC sys	124/20	124/20
28	CE-G-RT - 30 - C/A - X	LeRC sys	142/20	142/20
29	CE-G-PT - 30 - X - X	237/75	237/50	237/75
30	CE-G-PS - 30 - X - X	238/60	238/30	238/60
31	CE-G-GS - 70 - X - X	LeRC sys	LeRC	LeRC
32	CE-G-TT - 70 - P/R - X	LeRC sys	81/20	81/20
33	CE-G-RT - 70 - CA - X	LeRC sys	231/20	231/10
34	CE-G-PT - 70 - X - X	239/75	239/50	239/75
35	CE-G-PS - 70 - X - X	242/60	242/30	242/60
36	CE-G-GS - 170 - X - X	LeRC sys	LeRC	LeRC
37	CE-G-TT - 170 - X - X	LeRC sys	82/20	82/20
38	CE-G-RT - 170 - X - X	LeRC sys	244/20	244/10
39	CE-G-PT - 170 - X - X	243/75	243/50	243/75
40	CE-G-PS - 170 - X - X	245/60	245/30	245/60
41	CE-G-GS - 260 - X - X	LeRC sys	LeRC	LeRC
42	CE-G-TT - 260 - X - X	LeRC sys	345/20	LeRC
43	CE-G-RT - 260 - X - X	LeRC sys	LeRC	LeRC
44	CE-G-PT - 260 - X - X	246/75	246/50	246/75
45	CE-G-PS - 260 - X - X	247/60	247/30	247/60
46	CE-G-GS - 350 - X - X	LeRC sys	LeRC	LeRC
47	CE-G-TT - 350 - X - X	LeRC sys	346/20	LeRC
48	CE-G-RT - 350 - X - X	LeRC sys	140/20	140/20
49	CE-G-PT - 350 - X - X	249/75	249/50	249/75
50	CE-G-PS - 350 - X - X	250/60	250/50	250/60

Table 5. - Summary of HRE/AIM test points used for analyses.

(a) Mach 6 component integration results.

Page No.*	Reading Number	Time	M_o	P_{T_o}, psia	T_{T_o}, °R	X_{CL}, in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
—	33**	126.95	6.0	750	3000	35.2	0°	0	0	0	0	No	No fuel injection
—		161.15						1A,1B/.24	0	0	0.24	1,2	1st stage only
—		168.0						1A,1B/.3	0	0	0.30		1st stage only
—		174.65						1A,1B/.36	0	0	0.36		Max. ϕ, engine unstart
57	34	98.15	6.0	750	3000	35.2	0°	0	0	0	0	1,2	
65		104.45						1A,1B/.20	0	0	0.20		1st stage only
73		148.55						1A,1B/.23	2A/.58	0	0.81		1st and 2nd stages
81		181.85						1A,1B/.21	2A/.56	3A/.39	1.16		Max. ϕ, 3 stages
89		196.25		940				1A,1B/.15	2A/.44	3A/.32	0.91		Max. ϕ, 3 stages
—	36 a	119.18	6.0	750	3000	35.2	0°	0	0	0	0	No	Auto ignition
—	a	124.58						1A,1B/.26	0	0	0.26		
97		132.68						1A,1B/.25	2A,2C/.34	0	0.59		
106		144.38						1A,1B/.24	2A,2C/.49	0	0.73		
115		158.78						1A,1B/.23	2A,2C/.69	0	0.92		
124		173.18						1A,1B/.22	2A,2C/.75	0	0.97		
133	38	96.24	6.0	750	3000	35.2	0°	0	0	0	0	No	
141		107.05						1A,1B/.33	0	0	0.33		1st stage only
150		113.35						0	2C/.38	0	0.38		2nd stage only } transient data
158		116.95						1A,1B/.18	2C/.67		0.85		
167	52	165.93	6.0	750	3000	35.2	0°	0	0	0	0	No	ϕ1A,1B and ϕ4,2C
175		172.23						1A,1B/.24	4,2C/.26	0	0.50		
183		180.33						1A,1B/.20	4,2C/.41	0	0.61		
191		189.33						1A,1B/.20	4,2C/.53	0	0.73		
199	54	156.46	6.0	750	3000	35.2	0°	0	0	0	0	No	Constant ϕ1A,1B, ϕ2A,2C
207		185.26						1A,1B/.21	2A,2C/.64	0	0.85		ramped up 3 times
215		200.56						1A,1B/.23	2A,2C/.43	0	0.66		
223		222.16						1A,1B/.24	2A,2C/.25	0	0.49		
231		235.66						1A,1B/.24	2A,2C/.52	0	0.76		
239		253.66						1A,1B/.18	2A,2C/.60	0	0.78	1.2	
247		280.66						1A,1B/.20	2A,2C/.61	0	0.81	No	
255	57	195.11	6.0	750	3000	35.2	0°	0	0	0	0	No	Optimized performance
263		207.71						1A,1B/.21	2A,2C/.73	0	0.94		
271		234.71						1A,1B/.32	2A,2C/.60	0	0.92		
279		265.31						1A,1B/.21	2A,2C/.36	0	0.57		
287		287.81						1A,1B/.20	2A,2C/.54	0	0.74		
295	60	155.69	6.0	750	3000	35.2	0°	0	0	0	0	No	Variation of fuel schedule
303		178.19						1A,1B/.21	2A,2C/.64	0	0.85		
311		186.29						1A,1B/.22	2A,2C/.65	0	0.87		
319		202.49						1A,1B/.21	2A,2C/.65	0	0.86		
327		223.19						1A/.21	2A,2C/.66	0	0.87		
335		230.39						1A,1B/.21	2A,2C/.67	0	0.88		
343		241.19						1B/.19	2A,2C/.68	0	0.87		
351		249.29						1B/.24	2A,2C/.68	0	0.92		
359		258.29						0	2A,2C/.76	0	0.76		
367		264.59						0	2A,2C/.80	0	0.80		

*Reference 10

** Because of insufficient valid engine surface pressure measurements, performance results were not obtained.

a Listings not available.

Table 5. - Continued.

(b) Mach 6 engine performance results.

Page* No.	Reading Number	Time	M_o	P_{T_o}, psia	P_{T_o}, °R	X_{CL}, in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
55	61	178.86	6.0	750	3000	36.7	0°	0	0	0	0	No	Effect of spike position
63		198.66						1A,1B/.13	2A,2C/.36	0	0.49		
72		205.86						1A,1B/.15	2A,2C/.49	0	0.64		
81		212.16						1A,1B/.15	2A,2C/.61	0	0.76		
90		222.06						1A,1B/.14	2A,2C/.73	0	0.87		
99		231.06				37.5	0°	0	0	0	0	No	Effect of spike position
108		243.66						1A,1B/.30	0	0	0.30		
117		246.36						1A,1B/.30	2A,2C/.47	0	0.77		
126		251.76						1A,1B/.29	2A,2C/.65	0	0.94		
135		262.56						1A,1B/.27	2A,2C/.96	0	1.13		High test cell and AIM nozz. pressures
144		273.36						1A,1B/.26	2A,2C/1.15	0	1.41		
153	63	186.15	6.0	930	3000	35.2	0°	0	0	0		No	Effect of altitude
161		192.45						1A,1B/.24	2A,2C/.56	0	0.80		
169		216.75						1A,1B/.24	2A,2C/.76	0	1.00		
177		249.15		470				0	0	0	0		
185		275.25		470				1A,1B/.26	2A,2C/.73	0	0.99		
193	64	156.11	6.0	750	3000	35.2	0°	0	0	0	0	No	Subsonic-supersonic transition
201		167.81						1B/.24	2A,2C/.77	0	1.01		
209		202.01						0	0	3A,3B/.85	0.85		
217		239.81						1B/.23	2A,2C/1.11	0	1.34		
225		261.41						1B/.24	0	3A,3B/.8	1.04		
233		293.81						1B/.26	2A,2C/.8	0	1.06		
241	65	164.03	6.0	750	3000	35.2	0°	0	0	0	0	No	Supersonic combustion with instrumentation rig, gas sampling
249		174.83						1A,1B/.23	0	0	0.23		
257		180.23						1A,1B/.24	2A,2C/.34	0	0.58		
265		196.43						1A,1B/.24	2A,2C/.59	0	0.83		
273		201.83						1A,1B/.24	2A,2C/.80	0	1.04		
281		218.03						1A,1B/.27	2A,2C/.76	0	1.03		
289		235.13						1A,1B/.25	2A,2C/.79	0	1.04		
297	69	177.00	6.0	750	3000	35.2	0°	0	0	0	0	No	Supersonic combustion with instrumentation rig, gas sampling
305		198.60						1A,1B/.22	0	0	0.22		
313		212.10						1A,1B/.23	2A,2C/.48	0	0.48		
321		226.50						1A,1B/.23	2A,2C/.59	0	0.82		
329		256.20						1A,1B/.22	2A,2C/.69	0	0.91		
337		265.20						1A,1B/.23	2A,2C/.79	0	1.02		
345	71	160.54	6.0	750	3000	35.2	3°	0	0	0	0	No	Angle of attack performance
353		171.39						1A,1B/.22	0	0	0.22		
361		174.94						1A,1B/.22	2A,2C/.31	0	0.53		
369		193.84						1A,1B/.24	2A,2C/.59	0	0.83		
377		207.34						1A,1B/.24	2A,2C/.81	0	1.05		
385		248.74						0	2A,2C/1.33	0	1.33		
393		266.74						0	2A,2C/.87	0	0.87		
401		270.34						0	2A,2C/.87	0	0.87		
409		284.74						0	2A,2C/.66	0	0.66		
417		285.64						0	2A,2C/.66	0	0.66		

*Reference 11

Table 5. - Continued.

(c) Mach 7 component integration and engine performance results.

Page* No.	Reading Number	Time	M_o	P_{T_o}, psia	P_{T_o}, °R	X_{CL}, in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
54	88	236.40	7.25	1000	3160	36.6	0°	0	0	0	0	2	Exploratory run
62		245.40			3170			1A,1B/.30	0	0	0.30		
70		261.60			3250			1A,1B/.42	0	0	0.42		
78		269.70			3280			1A,1B/.55	0	0	0.55		
86		270.60			3270			1A,1B/.57	0	0	0.57		
94		271.50			3270			1A,1B/.58	0	0	0.58		
102		278.70			3270			1A,4/.16	2A,2C/.70	0	0.86		
111		285.90			3250			1A,4/.31	2A,2C/.60	0	0.91		
120		294.00			3200			1A,4/.28	2A,2C/.57	0	0.85		
129		299.40			3150			1A,4/.45	2A,2C/.46	0	0.91		
138		305.70			3090			1A,4/.49	2A,2C/.41	0	0.90		
147	89	250.77	7.4	1000	1790	36.6	0°	0	0	0	0	No	Effect of low T_{TO}
155		272.37	7.25		3180			1A,1B/.32	2A,2C/.47	0	0.79	2	
164		283.17			3270			1A,1B/.34	2A,2C/.55	0	0.89		
173		290.37			3270			0	2A,2C/.75	0	0.75		
181		294.87			3310			0	2A,2C/.92	0	0.92		
189		304.77			3290			0	2A,2C/.59	0	0.59		
197		310.17			3060			1A,1B/.32	2A,2C/.57	0	0.89		
206, 232	**	316.47	7.30		2720			1A,1B/.29	2A,2C/.54	0	0.83		
215, 241	**	327.27	7.34		2410			1A,1B/.28	2A,2C/.54	0	0.82		
224		352.47	7.25		3300			1A,1B/.36	2A,2C/.57	0	0.93		
249	90	197.22	7.25	1000	3000	36.6	0°	0	0	0	0	No	Optimization
257		206.22						1A,1B/.48	0	0	0.48	2	
265		212.52						1A,1B/.49	4/.05	0	0.54		
273		217.02						1A,1B/.48	1C,4/.34	0	0.82		
281		230.52						1A,1B/.26	1C,4/.51	0	0.77		
289		235.02						1A,1B/.79	1C,4/1.19	0	1.98		Inlet unstarted
297		246.72						1A/.51	0	0	0.51		
305		247.62						1A/.55	0	0	0.55		
313	91	175.65	7.25	1000	3100	36.6	3°	1A,1B/.39	0	0	0.39	2	Angle of attack
321		180.15						1A,1B/.47	0	0	0.47	2	
329		186.45						0	0	0	0	No	
337		190.05						1A,1B/.51	4/.13	0	0.64	2	
345		203.55						1A,1B/.52	0	0	0.52		
353		216.15						1B/.27	4,2C/.34	0	0.61		
361		224.25						1B/.28	4,2C/.50	0	0.78		
369		226.95						1B/.28	4,2C/.45	0	0.73		
377		229.65						1B/.33	4,2C/.39	0	0.72		
385		235.95						1B/.29	2C/.41	0	0.70		
393	92	186.87	7.38	1000	2050	36.6	0°	0	0	0	0	No	Supersonic combustion with instrumentation rig, gas sampling and O_2 content effect
401		205.77	7.29		2850			1A,1B/.48	4,2C/.34	0	0.72	2	
409		227.37						1A,1B/.50	4,2C/.43	0	0.93		
417		248.07						1B/.33	4,2C/.58	0	0.91		
425		290.37	7.25		3000			1A,1b/.47	4,2C/.55	0	1.12		
433		312.87	7.25		3000			1A,1B/.36	4,2C/.49	0	0.85		

*Reference 12

** Recomputations were made with surface pressure substitutions

Table 5. - Continued.

(d) Mach 5 component integration and engine performance results.

Page* No.	Reading Number	Time	M_o	P_{T_o}, psia	P_{T_o}, °R	X_{CL}, in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
54	93	134.03	5.1	420	2100	35.2	0°	0	0	0	0	No	No fuel injection
62		142.13						0	2A/.29	0	0.29	2	2nd stage only
70		150.23						0	2A/.31	3A,3B/.25	0.56		Subsonic combustion
78		158.33						0	0	3A,3B/.60	0.60		and O_2 content effect
86		162.83						0	0	3A,3B/.71	0.71		
94		174.53						0	0	3A,3B/.49	0.49		
102		182.63						0	0	3A,3B/.35	0.35		
110	94	134.14	5.1	420	2230	35.2	0°	0	0	0	0	No	Subsonic combustion
118		140.44						0	2A/.49	0	0.49	2	
126		150.34						0	2A/.49	3A,3B/.47	0.96		
134		157.54						0	0	3A,3B/1.03	1.03		
142		163.84						0	0	3A,3B/1.19	1.19		
150		180.04						0	0	3A,3B/.59	0.59		
158		214.24		300	2940			0	2A/.53	0	0.53		Effect of T_{TO}
166		215.14						0	2A/.53	0	0.53		High test cell and
174		218.74						0	2A/.54	3A,3B/.5	1.04		AIM nozz. pressures
183		231.34						1A,1B/.15	0	0	0.15		
191		233.14						1A,1B/.25	0	0	0.25		
199		234.04						1A,1B/.27	0	0	0.27		
207	95	129.55	5.2	300	2430	35.2	0°	0	0	0	0	No	Supersonic combustion
215		140.35	5.1		3080			1A,1B/.16	0	0	0.16	2	
223		160.15			2940			1A,1B/.18	2A,2C/.68	0	0.86		
231		169.15						1A,1B/.19	2A,2C/.83	0	1.02		
239		189.85						0	2A,2C/.99	0	0.99		
247		196.15						0	2A,2C/.86	0	0.86		
255		204.25						0	2A,2C/.71	0	0.71		
263		211.45						0	2A,2C/.58	0	0.58		
271		217.75						0	2A,2C/.70	0	0.70		
279		228.55						1A,1B/.22	2A,2C/.63	0	0.85		
287		241.15						0	0	0	0	No	
295		252.85		320	2800			1A,1B/.18	2A,2C/.70	0	0.88	2	
303		289.75		310	2890			0	2A,2C/.86	0	0.86		AIM nozz. press. high
311		310.45		420	2230			0	2A,2C/.66	0	0.66		Effect of T_{TO}
319		317.65		420	2230			0	2A,2C/.51	0	0.51		
327	96	134.44	5.1	420	2230	35.2	3°	0	0	0	0	No	Angle of attack perform-
336		141.64						0	2A/.38	0	0.38	2	ance
344		150.64						0	2A/.45	3A,3B/.38	0.83		
352		165.94						0	0	3A,3B/.87	0.87		
360		172.24						0	0	3A,3B/.59	0.59		
368		180.34						0	0	3A,3B/.43	0.43		
376		244.24		300	2925			0	0	0	0	No	
384		264.04		420	2230			1A,1B/.10	0	0	0.10	2	Fuel flow meas.
392		274.84						1A,1B/.21	0	0	0.21	2	malfunction; 1A
400		275.74						1A,1B/.20	0	0	0.20	2	flow only indicated
408		294.64						0	0	0	0	No	
417		313.54						0	0	3A,3B/.77	0.77	2	High test cell and AIM nozz. pressures

*Herein

Table 5. - Concluded.

(d) Concluded.

Page No.*	Reading Number	Time	M_o	P_{T_o}, psia	P_{T_o}, °R	X_{CL}, in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
425	97	135.71	5.1	210	2100	35.2	0°	0	0	0	0	No	Subsonic combustion with
433		156.41			2200			0	2A/.51	3A,3B/.49	0.90	2	instrumentation rig and
442		160.91						0	2A/.32	3A,3B/.24	0.56		gas sampling probes
451		182.51						0	0	3A,3B/.50	0.50		
459		201.41						0	0	3A,3B/.67	0.67		
467		224.81						0	0	3A,3B/.86	0.86		
476		252.71		420				0	2A/.50	3A,3B/.43	0.93		
485		271.61						0	2A/.43	3A,3B/.34	0.77		
494		295.91						0	0	3A,3B/.74	0.74		
502		317.51						0	0	3A,3B/.90	0.90		
510		322.01						0	0	3A,3B/1.07	1.07		High test cell and
518		325.61						0	0	3A,3B/1.08	1.08		AIM nozz. pressures

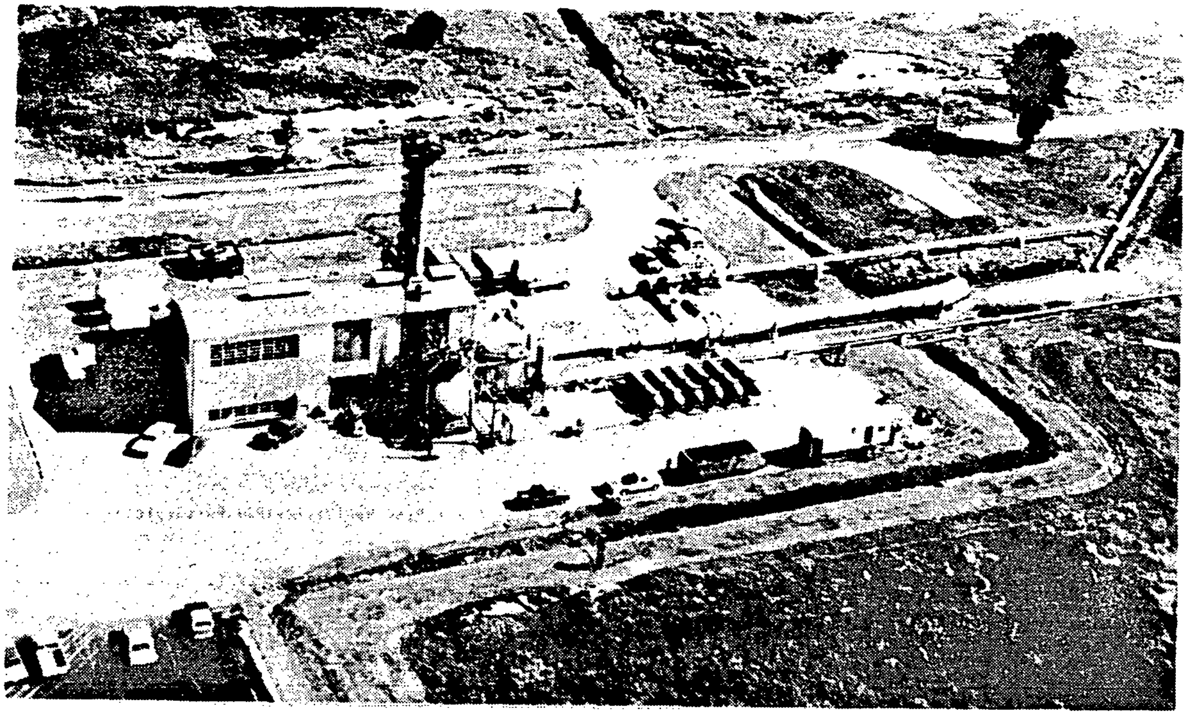
* Herein

Table 6. - Instrumentation code-outs for HRE/AIM performance computations.

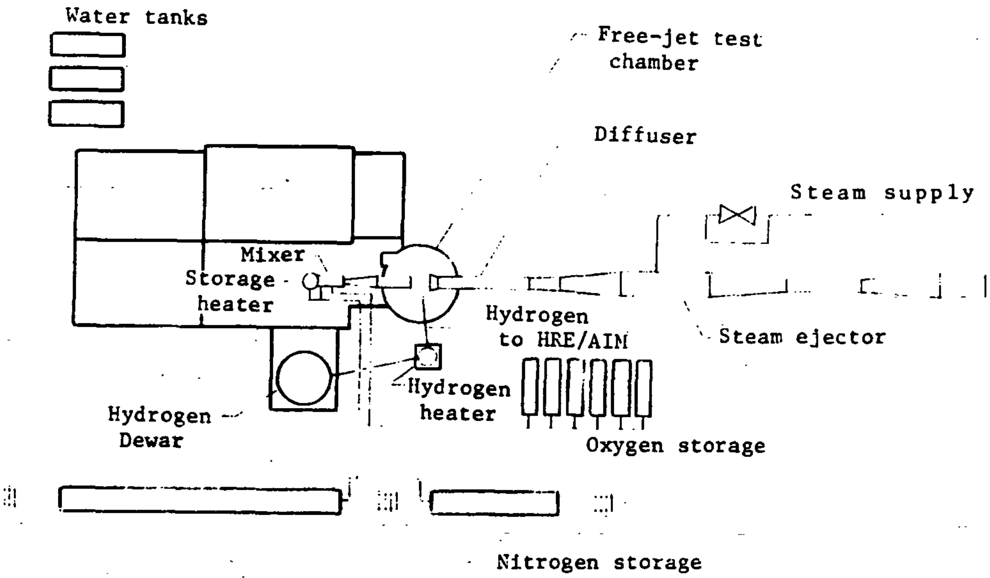
```
CO33    0000000 PROCDEF CO33
CO33    0000100 KDOSEL  60, 65, 67, 83, 84, 85, 86, 87, 88, 91, 92,123,124,148,154,156,158,160,162,164
CO33    0000200 KDOSEL 165,166,168,171,172,174,175,176,180,181,182,183,186,191,206
CO33    0000300 KDOSEL 208,212,226,228,230,231,236,239,240,241,244,248,249,290,292
CO33    0000400 KDOSEL 305,306,307,308,309,310,311,312,313,314,315,316,317,318,319
CO33    0000500 KDOSEL 320,321,322,323,324,325,326,327,328,329,330,331,332,333,334
CO33    0000600 KDOSEL 335,336,337,338
CO33    0000700 KDOSEL 399
CO33    0000800 QUALIFY AINLETT
CO33    0000900 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO33    0001000 QUALIFY STAPRS
CO33    0001100 AT 320(2);DISPLAY 'INPUT PSI(1,1), THEN TYPE GO'
CO34    0000000 PROCDEF CO34
CO34    0000100 KDOSEL  60, 65, 67, 84, 85, 86, 87, 88, 92,123,124,148,154,156,158,160,162,164
CO34    0000200 KDOSEL 166,168,171,172,174,176,180,181,182,183,186,191,195,199,201
CO34    0000300 KDOSEL 206,208,212,226,228,230,231,236,240,241,244,248,249,252,290,292
CO34    0000400 KDOSEL 305,306,307,308,309,310,311,312,313,314,315,316,317,318,319
CO34    0000500 KDOSEL 320,321,322,323,324,325,326,327,328,329,330,331,332,334,335
CO34    0000600 KDOSEL 336,337,338
CO34    0000700 KDOSEL 399
CO34    0000800 QUALIFY AINLETT
CO34    0000900 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO36    0000000 PROCDEF CO36
CO36    0000100 KDOSEL  60, 65, 66, 67,123,124,144,154,156,158,160,162,164,166,168,171,172,174,181
CO36    0000200 KDOSEL 182,186,191,195,199,206,208,218,228,230,231,236,240,241,244
CO36    0000300 KDOSEL 248,249,252,289,290,292,294,305,310,312,313,314,315,320
CO36    0000400 KDOSEL 399
CO36    0000500 QUALIFY AINLETT
CO36    0000600 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO38    0000000 PROCDEF CO38
CO38    0000100 KDOSEL  60, 65, 66, 67,123,124,144,154,168,174,181,182,186,191,195,199,201,206,228
CO38    0000200 KDOSEL 230,231,236,240,241,244,248,249,252,290,292,294,305,310,312,313
CO38    0000300 KDOSEL 314,315,319,320
CO38    0000400 KDOSEL 399
CO38    0000500 QUALIFY AINLETT
CO38    0000600 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO38    0000700 QUALIFY STAPRS
CO38    0000800 AT 320(2);DISPLAY 'INPUT PSI(1,1), THEN TYPE GO'
CO52    0000000 PROCDEF CO52
CO52    0000100 KDOSEL  65, 66, 67,124,137,139,141,158,165,168,178,181,182,195,199,200,201,206,208
CO52    0000200 KDOSEL 226,230,249,252,289,290,292,294,305,313,314,315,320,329,399
CO52    0000400 QUALIFY AINLETT
CO52    0000500 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO54    0000000 PROCDEF CO54
CO54    0000100 KDOSEL  65, 66, 67,124,137,139,141,156,165,168,178,181,182,195,199,200,201,206,228,230
CO54    0000200 KDOSEL 249,252,268,289,290,292,294,305,313,314,315,319,320,329,399
CO54    0000400 QUALIFY AINLETT
CO54    0000500 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO57    0000000 PROCDEF CO57
CO57    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,199
CO57    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,320,321
CO57    0000300 KDOSEL 329
CO57    0000400 KDOSEL 399
CO57    0000500 QUALIFY AINLETT
CO57    0000600 AT 3(2);SET VAL(11,INITRO)=.73613,VAL(11,IOXY)=.26387;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO60    0000000 PROCDEF CO60
CO60    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,199
CO60    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,319,320
CO60    0000300 KDOSEL 321,329
CO60    0000400 KDOSEL 399
CO60    0000500 QUALIFY AINLETT
CO60    0000600 AT 3(2);SET VAL(11,INITRO)=.73613,VAL(11,IOXY)=.26387;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO61    0000000 PROCDEF CO61
CO61    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,199
CO61    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,319,320
CO61    0000300 KDOSEL 321,329
CO61    0000400 KDOSEL 399
CO61    0000500 QUALIFY AINLETT
CO61    0000600 AT 3(2);SET VAL(11,INITRO)=.73928,VAL(11,IOXY)=.26072;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO63    0000000 PROCDEF CO63
CO63    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,197
CO63    0000200 KDOSEL 199,201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,319
CO63    0000300 KDOSEL 320,321,329
CO63    0000400 KDOSEL 399
CO63    0000500 QUALIFY AINLETT
CO63    0000600 AT 3(2);SET VAL(11,INITRO)=.7724,VAL(11,IOXY)=.2276;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO64    0000000 PROCDEF CO64
CO64    0000050 KDOSEL  62, 65, 66, 74
CO64    0000100 KDOSEL 124,137,139,148,158,160,168,172,179,181,182,183,187,190,195
CO64    0000200 KDOSEL 197,199,201,206,226,230,248,249,252,289,290,292,294,305,313,314,315
CO64    0000300 KDOSEL 319,320,321,329,399
CO64    0000400 QUALIFY AINLETT
CO64    0000500 AT 3(2);SET VAL(11,INITRO)=.76751,VAL(11,IOXY)=.23249;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO65    0000000 PROCDEF CO65
CO65    0000100 KDOSEL  62, 65, 66, 74,137,139,181,182,183,187,188,190,195,197,199,201,206,226,230
CO65    0000200 KDOSEL 248,252,289,290,292,294,305,313,314,315,320,321,329,399
CO65    0000400 QUALIFY AINLETT
CO65    0000500 AT 3(2);SET VAL(11,INITRO)=.76751,VAL(11,IOXY)=.23249;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
CO69    0000000 PROCDEF CO69
CO69    0000100 KDOSEL  62, 65, 66, 74,137,139,181,182,183,187,190,195,197,199,201,206,226,230,248,252
CO69    0000200 KDOSEL 289,290,292,294,305,313,314,315,320,321,322,329,399
CO69    0000400 QUALIFY AINLETT
CO69    0000500 AT 3(2);SET VAL(11,INITRO)=.76479,VAL(11,IOXY)=.23521;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
```

Table 6. - Concluded.

```
C071    0000000 PROCDEF C071
C071    0000100 KDOSEL  53, 62, 65, 66, 74,124,137,139,158,160,172,179,181,182,183,187,190,195,197,199
C071    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,320,321,322,329,399
C071    0000500 QUALIFY AINLETT
C071    0000600 AT 3(2);SET VAL(11,INITRO)=.75452,VAL(11,IOXY)=.24548;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C088    0000000 PROCDEF C088
C088    0000100 KDOSEL  19, 22, 23, 54, 55, 60, 62, 64, 67, 74, 95,124,137,139,157,158,160
C088    0000200 KDOSEL 162,165,166,169,170,171,172,173,174,175,176,177,178,179,181
C088    0000300 KDOSEL 182,183,187,190,195,197,199,206,226,227,230,235,241,248,249
C088    0000400 KDOSEL 250,252,278,289,290,292,294,305,313,314,315,320,321,329,349
C088    0000500 KDOSEL 353,366,367,368,369,370,374,375,378,379,382,388,394,395,399
C088    0000800 QUALIFY AINLETT
C088    0000900 AT 3(2);SET VAL(11,INITRO)=.75328,VAL(11,IOXY)=.24672;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C088    0001000 QUALIFY ANOZ
C088    0001100 AT 360(3);SET DRAGEX=-0.5*Q0AC;DISPLAY DRAGEX,DRAGEX*PSIATM,'DRAGEX = -0.5*Q0*AC'
C088    0001200 QUALIFY CONVTA
C088    0001300 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C088    0001400 SETPS 123,0.690
C089    0000000 PROCDEF C089
C089    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74, 95,124,137,139,157,158,160,165,168,169
C089    0000200 KDOSEL 172,175,176,179,181,182,183,187,190,195,197,199
C089    0000300 KDOSEL 210,223,224,226,227,230,235,248,249,250,252,289,290,292,294
C089    0000400 KDOSEL 305,313,320,321,329,399
C089    0000600 QUALIFY AINLETT
C089    0000700 AT 3(2);SET VAL(11,INITRO)=.75148,VAL(11,IOXY)=.24852;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C089    0000800 QUALIFY CONVTA
C089    0000900 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C089    0001000 SETPS 123,0.690
C090    0000000 PROCDEF C090
C090    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74,124,137,139,157,158,160,165,172,175,176
C090    0000200 KDOSEL 179,181,182,183,187,190,195,197,199,202,203,206,207
C090    0000300 KDOSEL 208,210,215,224,226,227,230,235,248,249,250,252,273,289,290
C090    0000400 KDOSEL 292,294,305,313,314,315,320,321,329
C090    0000500 KDOSEL 399
C090    0000600 QUALIFY AINLETT
C090    0000700 AT 3(2);SET VAL(11,INITRO)=.7389,VAL(11,IOXY)=.2611;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C090    0000800 QUALIFY CONVTA
C090    0000900 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C091    0000000 PROCDEF C091
C091    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74, 96,124,137,139,148,157,158,160,165,172
C091    0000200 KDOSEL 175,176,179,181,182,183,187,190,195,197,199,206,208
C091    0000300 KDOSEL 226,227,230,235,248,249,250,252,289,290,292,294,305,313
C091    0000400 KDOSEL 314,315,320,321,329,399
C091    0000600 QUALIFY AINLETT
C091    0000700 AT 3(2);SET VAL(11,INITRO)=.7389,VAL(11,IOXY)=.2611;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C091    0000800 QUALIFY ENGPGM
C091    0000900 SET ALPHA=3.0;DISPLAY ALPHA
C091    0001000 QUALIFY CONVTA
C091    0001100 AT 0;SET MV(65)=MV(61),MV(66)=MV(61);DISPLAY MV(61),MV(65),MV(66)
C091    0001200 SETPS 123,0.690
C092    0000000 PROCDEF C092
C092    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74,137,139,148,175,176,181,182,183,187,190,195
C092    0000200 KDOSEL 197,199,206,208,226,227,230,232,248,252,265,266
C092    0000300 KDOSEL 267,268,270,271,272,289,290,292,294,305
C092    0000400 KDOSEL 313,314,315,320,321,329,399
C092    0000500 QUALIFY ANOZ
C092    0000600 AT 360(3);SET DRAGEX=-0.5*Q0AC;DISPLAY DRAGEX,DRAGEX*PSIATM,'DRAGEX = -0.5*Q0*AC'
C092    0000700 QUALIFY CONVTA
C092    0000800 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C093    0000000 PROCDEF C093
C093    0000100 COMACH5
C093    0000200 KDOSEL 96
C093    0000500 QUALIFY AINLETT
C093    0000600 AT 3(2);SET VAL(11,INITRO)=.655704,VAL(11,IOXY)=.344296;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C093    0000700 TUNNOPT 3
C094    0000000 PROCDEF C094
C094    0000100 COMACH5
C094    0000600 QUALIFY AINLETT
C094    0000700 AT 3(2);SET VAL(11,INITRO)=.76284,VAL(11,IOXY)=.23716;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C094    0000800 TUNNOPT 3
C095    0000000 PROCDEF C095
C095    0000100 COMACH5
C095    0000600 QUALIFY AINLETT
C095    0000700 AT 3(2);SET VAL(11,INITRO)=.7486,VAL(11,IOXY)=.25138;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C095    0000800 TUNNOPT 3
C096    0000000 PROCDEF C096
C096    0000100 COMACH5
C096    0000600 QUALIFY AINLETT
C096    0000700 AT 3(2);SET VAL(11,INITRO)=.76488,VAL(11,IOXY)=.23512;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C096    0000800 TUNNOPT 3
C097    0000000 PROCDEF C097
C097    0000100 KDOSEL  54, 55, 60, 62, 64, 65, 66, 67, 74,124,137,139,181,182,183,187,190,195,197
C097    0000200 KDOSEL 199,226,230,248,252,280,289,290,292,294,305,313,314,315,320,321,329,399
C097    0000500 QUALIFY AINLETT
C097    0000600 AT 3(2);SET VAL(11,INITRO)=.77086,VAL(11,IOXY)=.22914;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C097    0000700 QUALIFY ANOZ
C097    0000800 AT 360(3);SET DRAGEX=-0.5*Q0AC;DISPLAY DRAGEX,DRAGEX*PSIATM,'DRAGEX = -0.5*Q0*AC'
C097    0000900 TUNNOPT 3
C097    0001000 QUALIFY ACMBSTR
C097    0001100 AT 350(3);SET XCTP=XCT;DISPLAY XSLE,XCT,XCTP,XSTE,'SUBSONIC COMBUSTION'
COMACH5 0000000 PROCDEF COMACH5
COMACH5 0000100 KDOSEL  54, 55, 60, 62, 64, 65, 66, 67, 74,124,137,139,157,158,160,162,165,172,176,179
COMACH5 0000200 KDOSEL 181,182,183,187,190,195,197,199,206,226,230,248,249,252,280,289,290,292,294,305
COMACH5 0000300 KDOSEL 313,314,315,320,321,329,399
```

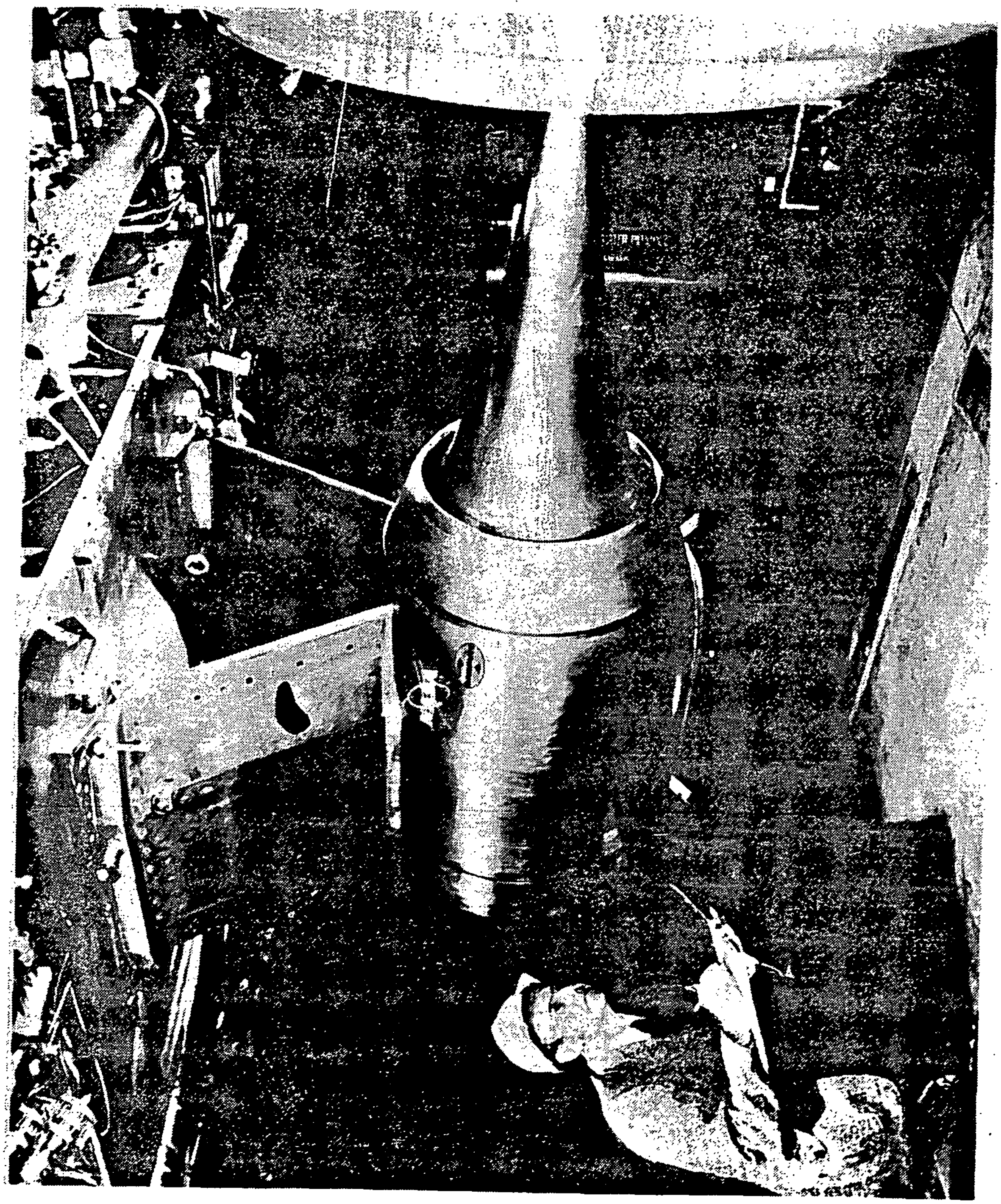


(a) Hypersonic Tunnel Facility (HTF).



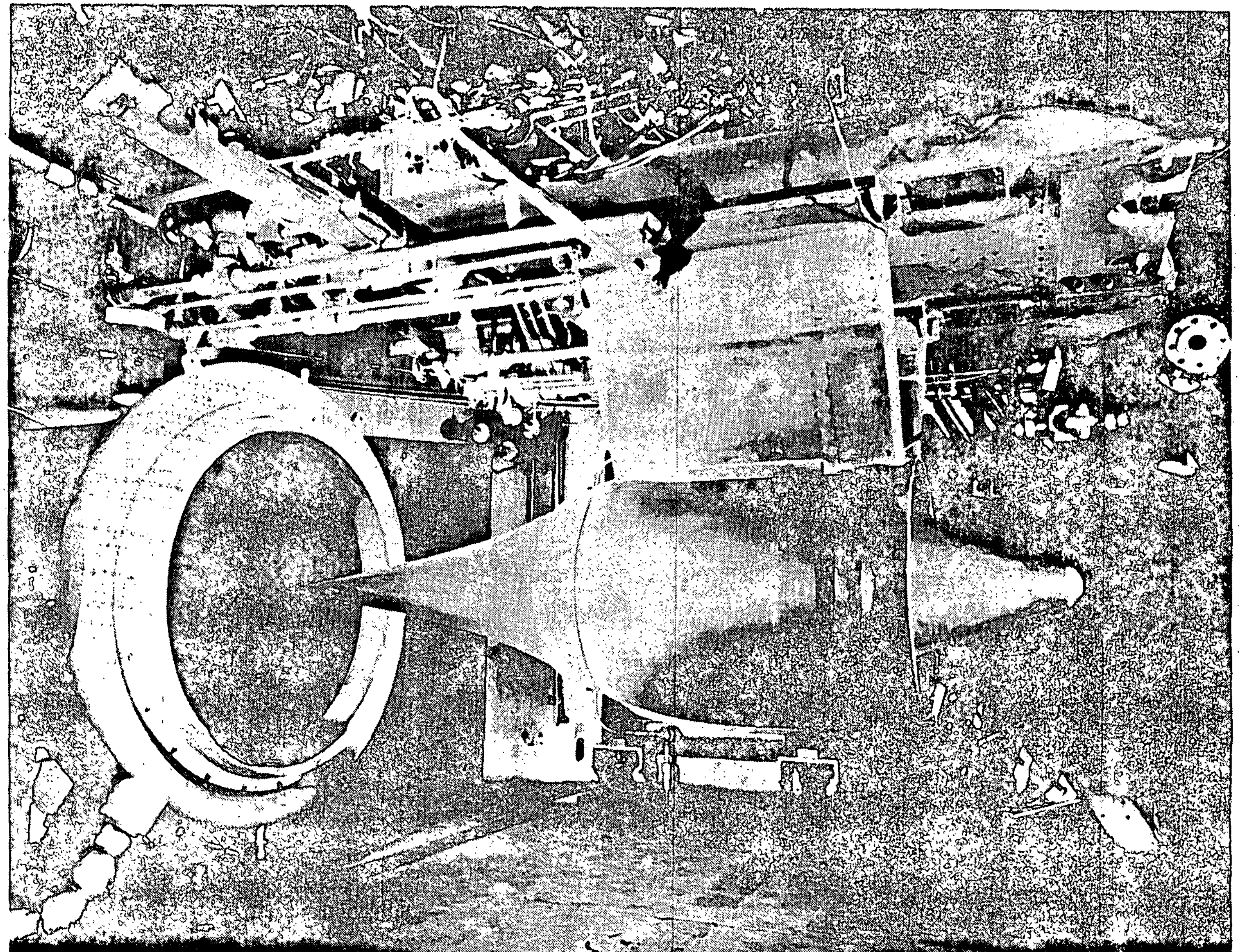
(b) Schematic layout of the NASA - Lewis - Plum Brook Hypersonic Tunnel Facility (HTF).

Figure 1. - NASA - Lewis Research Center's Plum Brook Station Hypersonic Tunnel Facility (HTF) and the Hypersonic Research Engine/Aerothermodynamic Integration Model (HRE/AIM) installation.

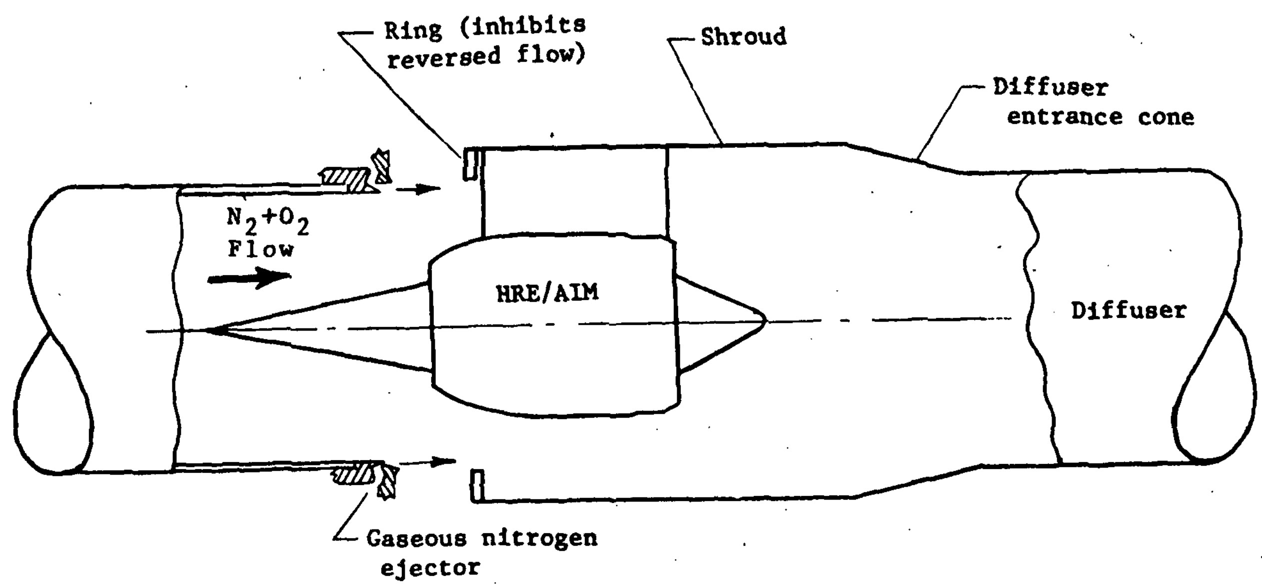


(c) HRE/AIM partically installed; pretest.

Figure 1. - Continued.



(d) HRE/AIM partically installed; Mach 5, 6, and 7 post test.



(e) Schematic of HRE/AIM test section located in the free-jet test chamber of the HTF.

Figure 1. - Concluded.

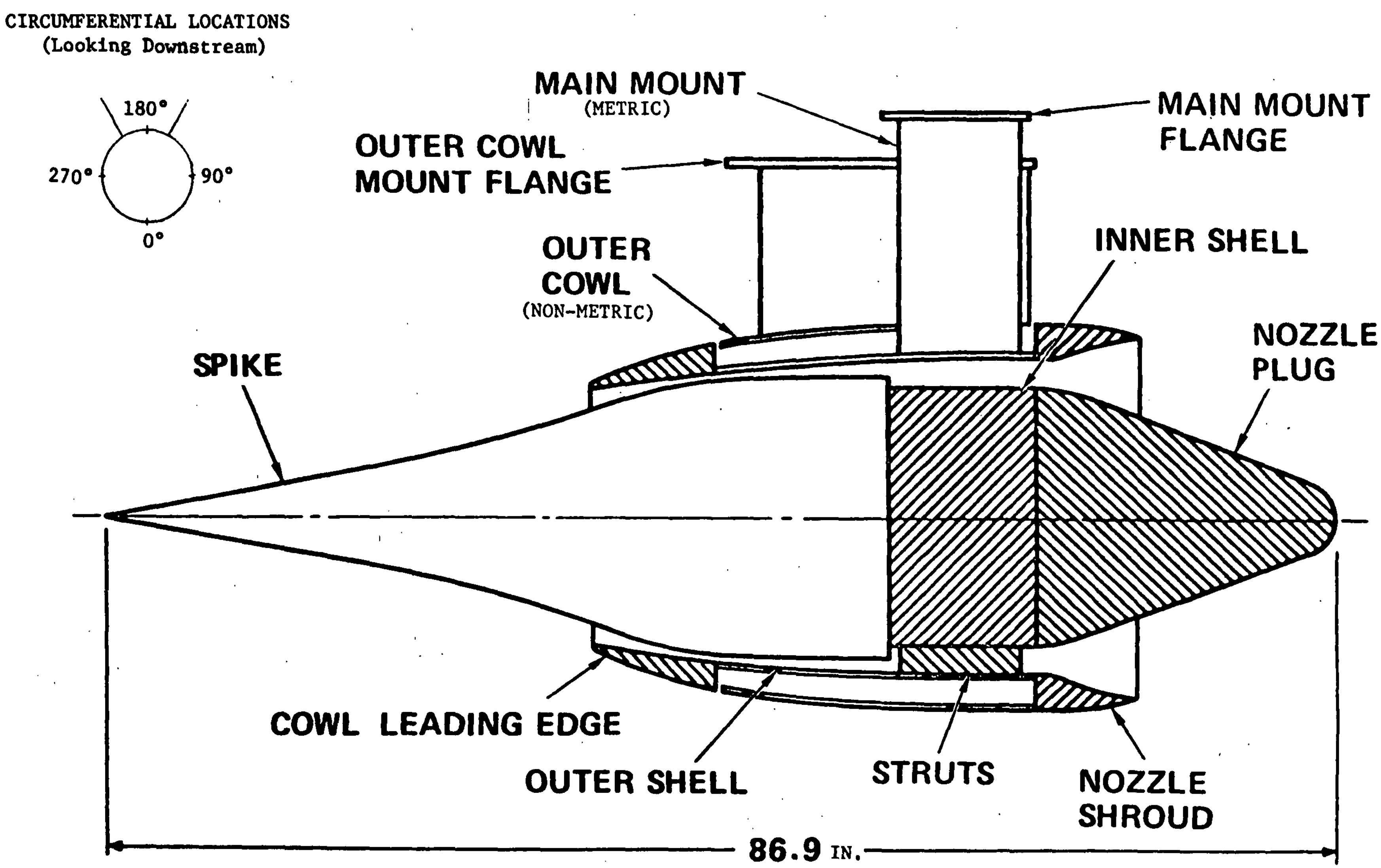
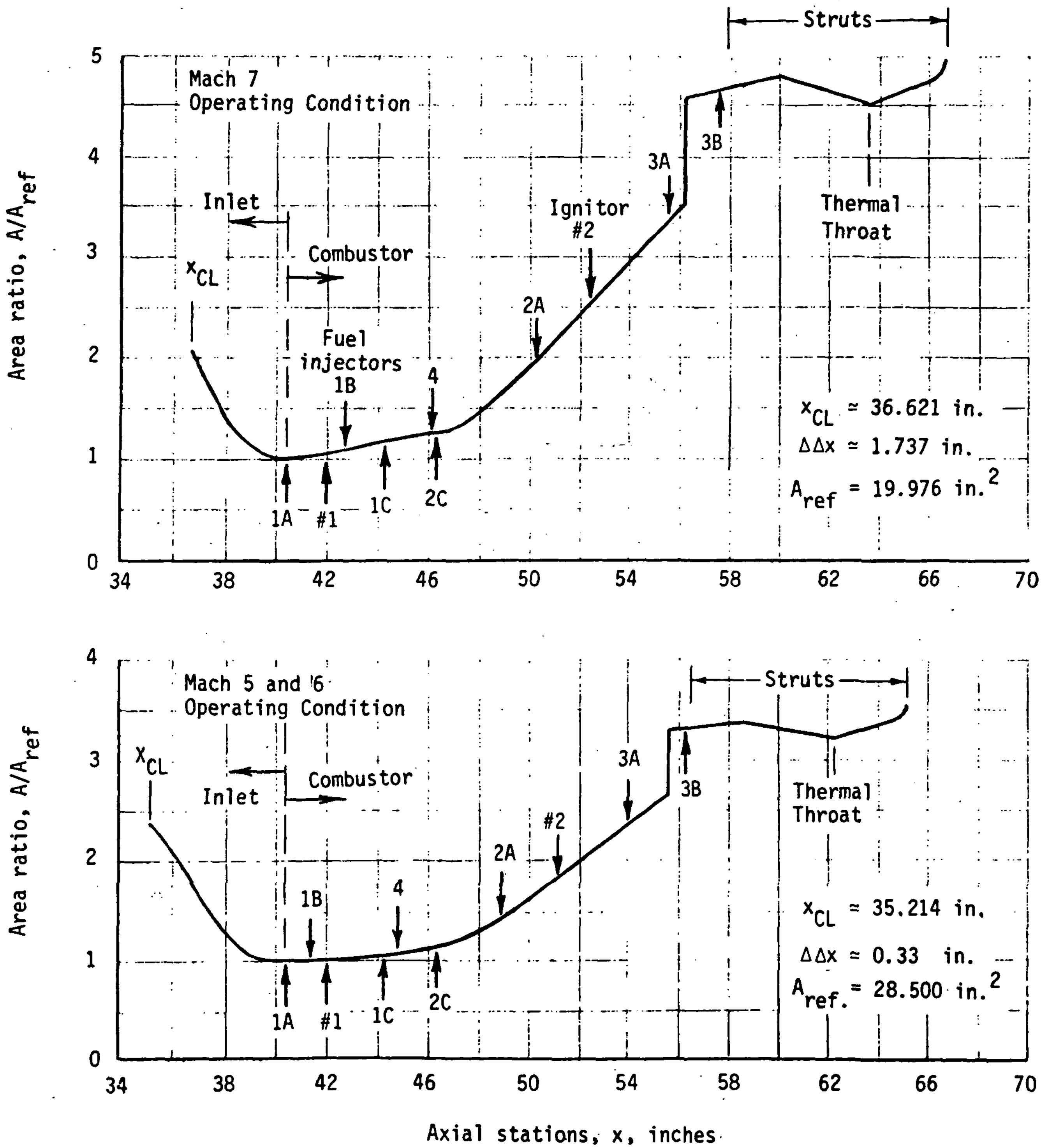


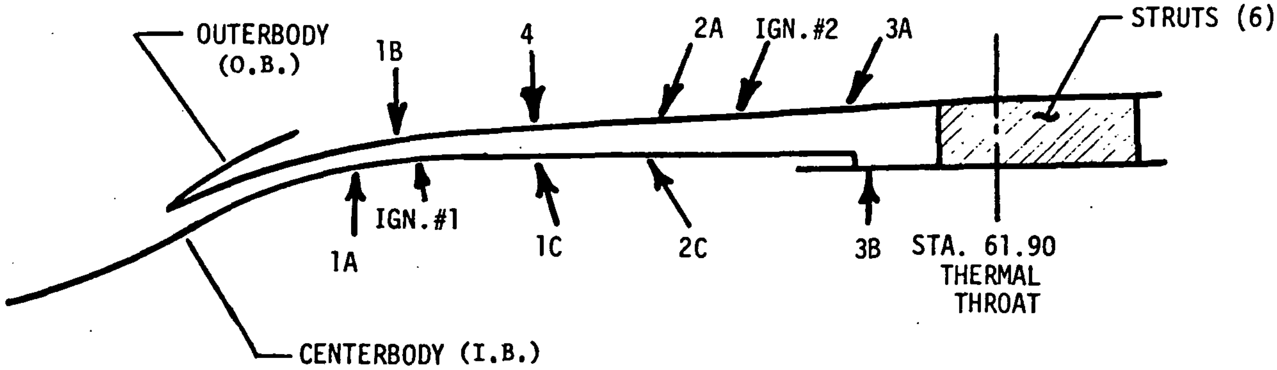
Figure 2. - General Configuration of the AIM



(a) Combustor area ratio distributions

Figure 3. - HRE/AIM combustor information.

COMBUSTOR CONFIGURATION



INJECTOR PARAMETERS
(Mach 6 position, x_{CL} = 34.884 in.)

Injector	Number of Injectors	Diameter, in.	Injection Angle[a], deg.	S/d	x, in.	Location
1A	37	0.119	90	13.1	40.5	I.B.
1B	37	0.119	90	13.9	41.25	O.B.
1C	37	0.119	106	13.5	44.5	I.B.
4	37	0.119	90	14.2	44.5	O.B.
2A	60	0.095	67	11.4	48.5	O.B.
2C	60	0.095	119	10.6	46.5	I.B.
3A	114	0.090	65	7.0	53.75	O.B.
3B	102	0.095	90	6.3	55.9	I.B.

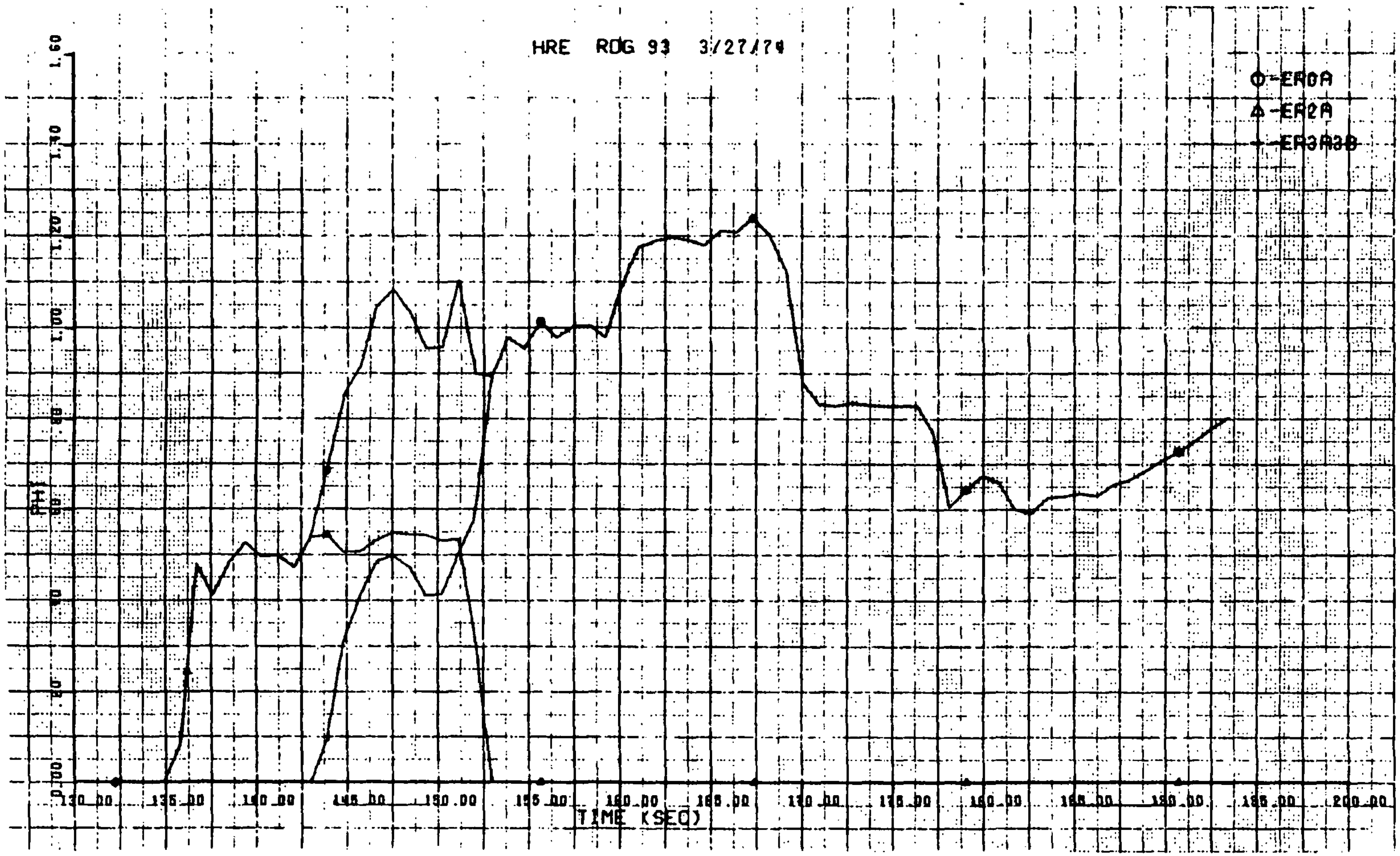
IGNITOR PARAMETERS

Ignitor	x, in.	Circumferential locations						Injection Angle[a], deg.	Location
1[c]	42.00	55	110	165	230	290	350	94.5	I.B.
2	50.98	40	100	-	220	240	280	60.0[b]	O.B.

a. With respect to AIM centerline.
b. Also looking upstream, ignitors #2 are inclined 30° clockwise.
c. Plug welded prior to reading 57.

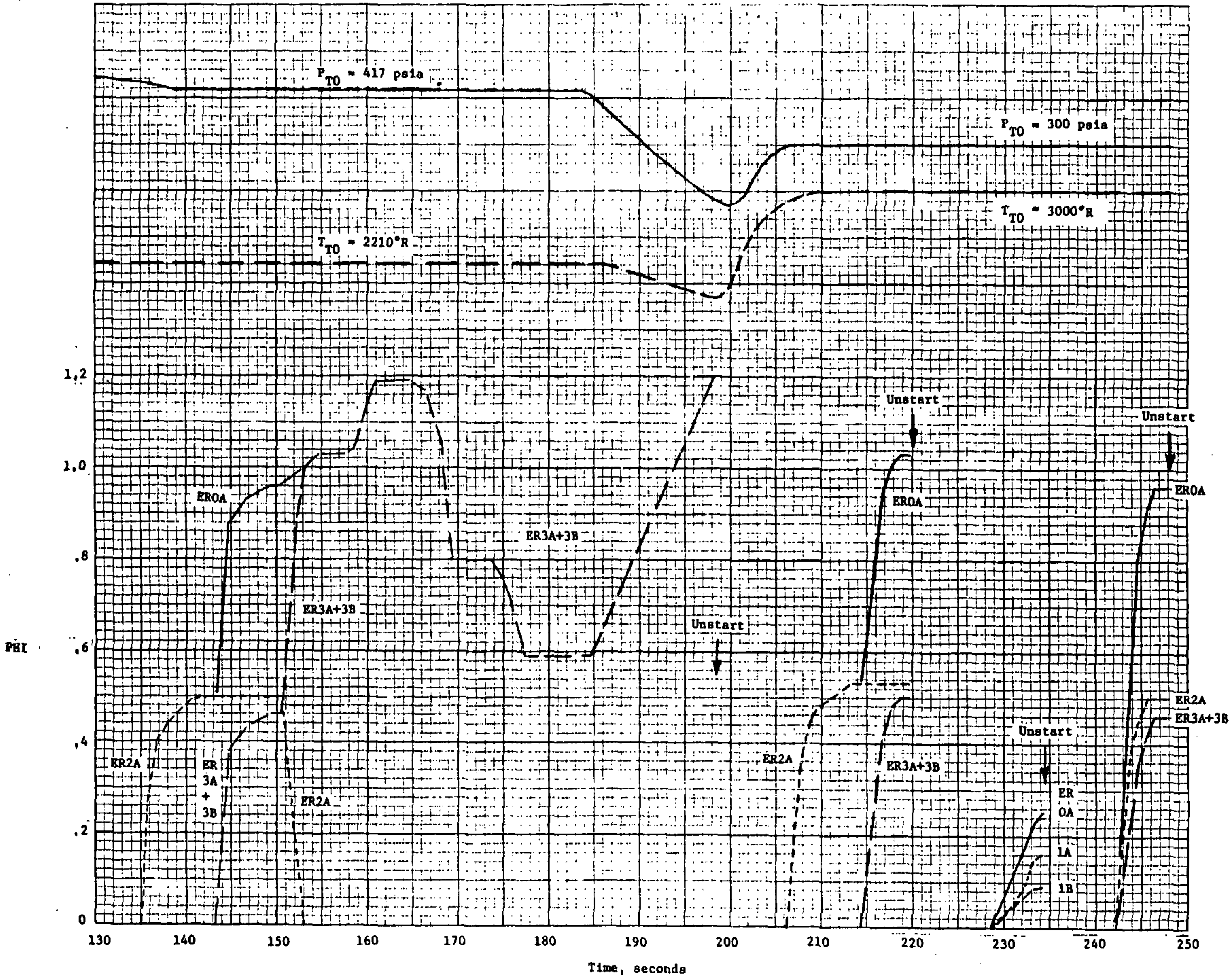
(b) Combustor configuration and parameters.

Figure 3. - Concluded.



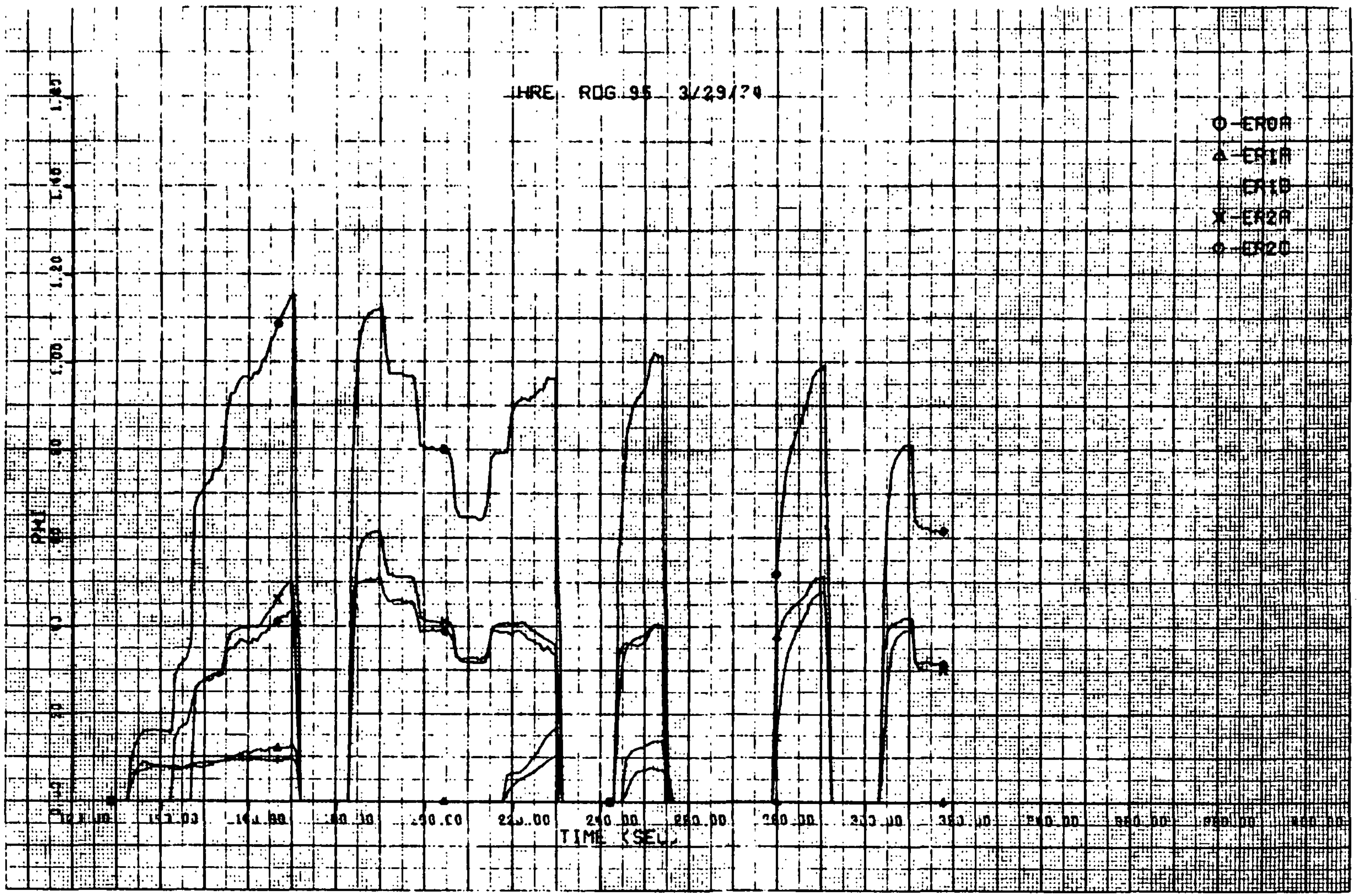
(a) Reading 93 - Measured Equivalence Ratio, ϕ

Figure 4. - HRE/AIM fuel equivalence ratio; Mach 5 component integration and performance results.



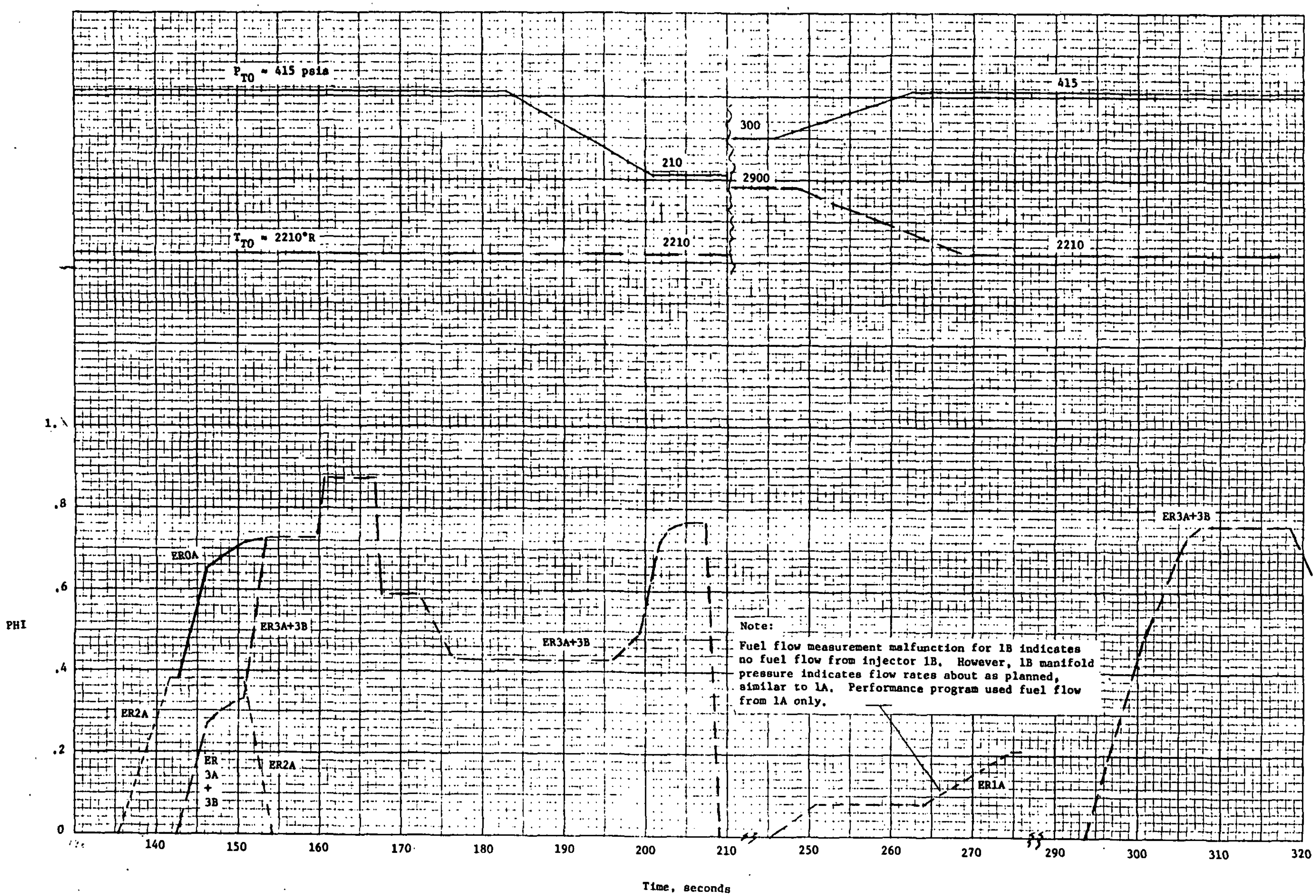
(b) Reading 94 - Measured equivalence ratio, ϕ

Figure 4. - Continued.



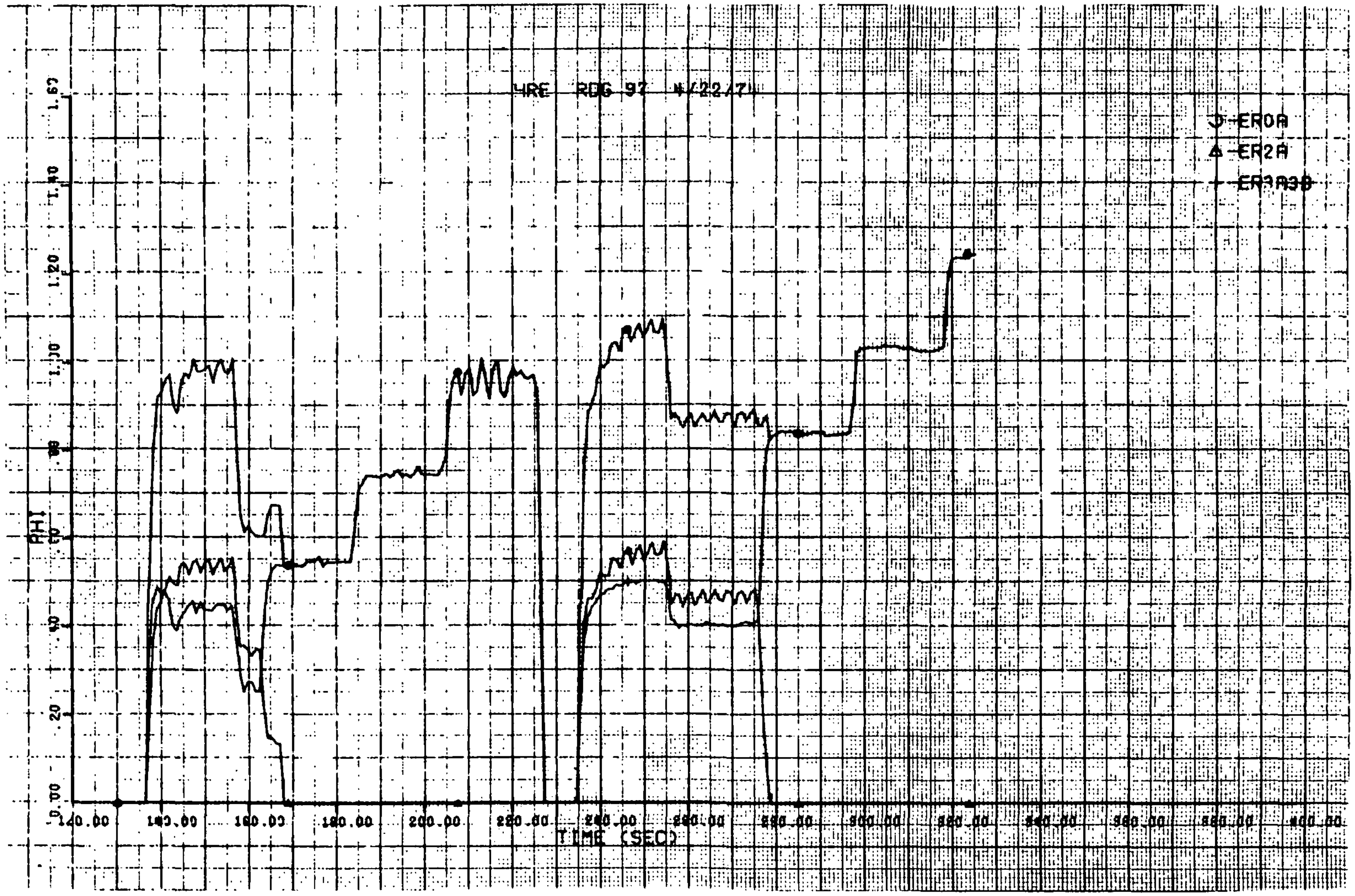
(c) Reading 95 - Measured Equivalence Ratio, ϕ

Figure 4. - Continued.



(d) Reading 96 - Measured equivalence ratio, ϕ

Figure 4. - Continued.



(e) Reading 97 - Measured Equivalence Ratio, ϕ

Figure 4. - Concluded.

Reading 93

t = 134.03 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

```
               P       T      H            GAMMA  MOLWT SONV  MACH  VEL    S      W/A      M     A/AC    MOMTM   F     IVAC  PHI  ETAC
WIND TUNNEL           1     0   4
 0.000   415.249 2026   383.6( 511) 1.3228 29.269 2134
 0.000     0.590  339   -47.0(  81) 1.3983 29.268  848 5.170 4642 1.750 0.15287 33.888 0.8655   5020 11.027 146.1
SPIKE TIP NS          2     0   5
 0.600    21.075 2026   383.6( 511) 1.3229 29.269 2134
 0.600    19.002 1975   369.5( 497) 1.3247 29.269 2108 0.398  839 1.952 0.15287 33.888 0.8655   5096  1.993 150.4
WIND TUNNEL           3     0   0
 0.000   415.249 2026   383.6( 511) 1.3228 29.269 2134
 0.000     0.607  342   -46.4(  81) 1.3983 29.268  901 5.146 4638 1.750 0.15579 34.538 0.8655   5113 11.230 146.1
SPIKE TIP NS          4     0   0
 0.600    21.075 2026   383.6( 511) 1.3229 29.269 2134
 0.600    18.910 1973   368.8( 496) 1.3248 29.269 2107 0.407  858 1.952 0.15579 34.538 0.8655   5113  2.076 146.1
INLET THROAT          5     0   4
40.400   180.899 1991   373.8( 501) 1.3241 29.269 2116
40.400    21.574 1155   151.2( 279) 1.3662 29.268 1637 2.038 3337 1.802 1.18081 34.538 0.1120   4202 62.413 121.7
INLET UPNNSK          6     0   3
40.400   180.899 1991   373.8( 501) 1.3241 29.269 2116
40.400    18.839 1114   140.8( 268) 1.3669 29.268 1609 2.122 3415 1.802 1.09403 34.538 0.1233   4260 58.055 123.4
INLET-DNNRBK          7     0   4
40.400   117.104 1991   373.8( 501) 1.3241 29.269 2116
40.400    96.223 1897   347.9( 475) 1.3275 29.269 2068 0.551 1139 1.831 1.09403 34.538 0.1233   4260 19.363 123.4
COMBUSTOR         0   8     1   5
40.410   180.615 1991   373.6( 501) 1.3241 29.269 2116
40.410    22.352 1166   154.2( 282) 1.3655 29.268 1645 2.016 3315 1.802 1.20328 34.538 0.1121   4200 61.995 121.6
COMBUSTOR         0   9     2   4
41.280   152.077 1989   372.1( 499) 1.3243 29.269 2113
41.280    26.038 1267   179.9( 307) 1.3590 29.268 1710 1.813 3101 1.813 1.20683 34.538 0.1117   4074 58.161 118.0
COMBUSTOR         0  10     3   4
41.345   150.244 1984   372.0( 499) 1.3243 29.269 2113
41.345    26.364 1275   182.0( 309) 1.3565 29.268 1716
                                                        1.797 3084 1.813 1.20751 34.538 0.1117   4064 57.864 117.7
COMBUSTOR         0  11     4   4
41.500   146.023 1983   371.6( 499) 1.3244 29.269 2112
41.500    27.176 1294   186.9( 314) 1.3574 29.268 1728 1.760 3041 1.815 1.20928 34.538 0.1115   4040 57.142 117.0
COMBUSTOR         0  12     5   5
42.460   130.165 1975   369.3( 497) 1.3247 29.269 2108
42.460    30.024 1363   204.7( 332) 1.3532 29.268 1770 1.622 2870 1.822 1.19739 34.538 0.1126   3947 53.408 114.3
COMBUSTOR         0  13     6   5
44.065   118.988 1960   365.3( 493) 1.3252 29.269 2101
44.065    30.863 1394   212.8( 340) 1.3513 29.268 1789 1.544 2762 1.826 1.15764 34.538 0.1165   3865 49.694 112.5
COMBUSTOR         0  14     7   5
44.310   117.684 1958   364.7( 492) 1.3253 29.269 2099
44.310    31.101 1399   214.2( 342) 1.3510 29.268 1792 1.531 2744 1.826 1.15504 34.538 0.1167   3876 49.256 112.2
COMBUSTOR         0  15     8   4
44.780   115.139 1954   363.6( 491) 1.3254 29.269 2098
44.780    31.676 1411   217.3( 345) 1.3503 29.268 1799 1.504 2706 1.827 1.15056 34.538 0.1172   3856 48.389 111.6
COMBUSTOR         0  16     9   4
44.800   115.005 1954   363.6( 491) 1.3254 29.269 2097
44.800    31.686 1412   217.4( 345) 1.3503 29.268 1799 1.503 2705 1.827 1.14996 34.538 0.1173   3855 48.338 111.6
COMBUSTOR         0  17    10   5
46.260   108.133 1945   361.1( 488) 1.3257 29.269 2093
46.260    29.748 1404   215.4( 343) 1.3507 29.268 1795 1.504 2700 1.830 1.08324 34.538 0.1245   3846 45.447 111.4
COMBUSTOR         0  18    11   4
47.305   105.656 1940   359.6( 487) 1.3259 29.269 2090
47.305    25.751 1357   203.0( 331) 1.3536 29.268 1766 1.585 2799 1.831 1.00631 34.538 0.1340   3868 43.773 112.6
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READING = 0093 BLOCK = 39 TIME = 134.029 MACH 5.2 PI = 415.249 TI = 2026.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	X	A/AC	MOPTR	C	IVAL	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.310	105.720	1940	359.6(487)	1.3259	29.269	2090											
47.310	25.835	1358	203.2(331)	1.3535	29.268	1767	1.565	2797	1.831	1.00811	34.538	0.1338	3807	43.617	112.6		
COMBUSTOR	0	20	13 5														
48.110	104.547	1936	358.5(486)	1.3261	29.269	2088											
48.110	22.403	1309	190.6(318)	1.3565	29.268	1737	1.669	2898	1.831	0.93960	34.538	0.1435	3935	42.321	113.9		
COMBUSTOR	0	21	14 4														
48.755	102.056	1933	357.7(485)	1.3262	29.269	2087											
48.755	19.463	1267	179.9(307)	1.3590	29.268	1710	1.744	2983	1.832	0.86771	34.538	0.1554	3976	40.221	115.1		
COMBUSTOR	0	22	15 5														
49.285	99.398	1930	357.0(484)	1.3263	29.269	2085											
49.285	17.453	1238	172.4(300)	1.3609	29.268	1692	1.797	3039	1.834	0.81151	34.538	0.1662	4005	38.331	116.0		
COMBUSTOR	0	23	16 4														
50.695	93.391	1924	355.3(483)	1.3265	29.269	2082											
50.695	13.550	1173	155.7(283)	1.3651	29.268	1649											
							1.916	3160	1.837	0.69163	34.538	0.1950	4069	33.967	117.8		
COMBUSTOR	0	24	17 5														
52.795	86.376	1916	353.1(480)	1.3268	29.269	2078											
52.795	9.999	1099	137.0(265)	1.3698	29.268	1599	2.057	3288	1.841	0.56687	34.538	0.2379	4139	28.967	119.8		
COMBUSTOR	0	25	18 5														
53.295	84.670	1914	352.7(480)	1.3268	29.269	2077											
53.295	9.020	1086	133.8(261)	1.3707	29.268	1590	2.081	3309	1.842	0.54371	34.538	0.2480	4151	27.961	120.2		
COMBUSTOR	0	26	19 5														
54.045	82.254	1912	352.0(479)	1.3269	29.269	2076											
54.045	8.664	1069	129.5(257)	1.3718	29.268	1578	2.115	3337	1.844	0.51251	34.538	0.2631	4166	26.560	120.6		
COMBUSTOR	0	27	20 5														
54.805	79.947	1910	351.5(479)	1.3270	29.269	2075											
54.805	8.015	1053	125.6(253)	1.3728	29.268	1567	2.145	3362	1.846	0.48466	34.538	0.2782	4180	25.322	121.0		
COMBUSTOR	0	28	21 5														
55.760	77.383	1908	350.8(478)	1.3271	29.269	2074											
55.760	7.325	1035	121.2(249)	1.3739	29.268	1554	2.180	3390	1.847	0.45417	34.538	0.2969	4196	23.924	121.5		
COMBUSTOR	0	29	22 4														
56.230	67.286	1907	350.5(478)	1.3271	29.269	2073											
56.230	5.595	999	112.1(240)	1.3762	29.268	1528	2.261	3454	1.857	0.36654	34.538	0.3679	4235	19.676	122.6		
COMBUSTOR	0	30	23 5														
56.285	67.222	1907	350.5(478)	1.3271	29.269	2073											
56.285	5.570	998	111.8(239)	1.3763	29.268	1527	2.263	3456	1.857	0.36545	34.538	0.3690	4236	19.627	122.7		
COMBUSTOR	0	31	24 5														
56.425	67.063	1906	350.4(478)	1.3272	29.269	2073											
56.425	5.512	995	111.2(239)	1.3764	29.268	1525	2.268	3460	1.857	0.36288	34.538	0.3716	4238	19.510	122.7		
COMBUSTOR	0	32	25 4														
56.505	68.010	1906	350.3(478)	1.3272	29.269	2073											
56.505	5.563	994	110.9(238)	1.3765	29.268	1524	2.271	3462	1.856	0.36701	34.538	0.3674	4239	19.744	122.7		
COMBUSTOR	0	33	26 4														
56.785	68.343	1905	350.2(478)	1.3272	29.269	2073											
56.785	5.508	990	109.8(237)	1.3768	29.268	1521	2.280	3468	1.856	0.36567	34.538	0.3688	4243	19.710	122.9		
COMBUSTOR	0	34	27 4														
57.011	68.661	1905	350.1(477)	1.3272	29.269	2072											
57.011	5.475	986	109.0(236)	1.3770	29.268	1519	2.287	3473	1.855	0.36511	34.538	0.3693	4246	19.707	122.9		
COMBUSTOR	0	35	28 4														
57.735	68.663	1904	349.7(477)	1.3272	29.269	2072											
57.735	5.324	978	106.9(234)	1.3775	29.268	1513	2.304	3485	1.855	0.35932	34.538	0.3753	4253	19.462	123.1		
COMBUSTOR	0	36	29 4														
58.755	68.894	1902	349.2(477)	1.3273	29.269	2071											
58.755	5.249	972	105.5(233)	1.3779	29.268	1509	2.315	3492	1.854	0.35703	34.538	0.3777	4256	19.375	123.2		
COMBUSTOR	0	37	30 5														
60.765	69.968	1899	348.5(476)	1.3274	29.269	2070											
60.765	5.496	979	107.2(235)	1.3775	29.268	1514											
							2.296	3475	1.853	0.36945	34.538	0.3650	4244	19.951	122.9		

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READING = 0095  BLOCK =  39  TIME = 130.029  MACH  5.2  PI = 415.299  TT = 2020.1

              P      T      H             GAMMA  MOLWT SONV  MACH  VEL    S      W/A      W     A/AC   POVIM   O     IVAL  PHI  ETAC
COMBUSTOR       0   36   31    5
62.185     70.753 1898  340.2( 476) 1.3274 29.269 2069
62.185      5.703  985  106.7( 236) 1.3771 29.268 1518 2.200 3401 1.852 0.37947 34.558 0.3555   4235 20.412 122.6
NOZZLE  AE         39   32    4
87.261     70.753 1898  346.2( 476) 1.3274 29.269 2069
87.261      0.402  467  -16.6( 111) 1.3991 29.268 1053 4.056 4272 1.852 0.06961 34.558 1.9371   4788  4.622 136.6
NOZZLE  PV         40   33    4
87.261     70.753 1898  346.2( 476) 1.3274 29.269 2069
87.261      0.607  525   -2.7( 125) 1.3984 29.268 1117 3.752 4190 1.852 0.09166 34.558 1.4711   4727  5.969 136.9
FICTIVE COMBUSTR   62   55    0
62.185    180.899 1898  346.2( 476) 1.3274 29.269 2069
62.185      0.607  402  -32.1(  95) 1.3991 29.268  977 4.464 4362 1.788 0.12472 34.558 1.0812   4851  8.455 140.4
FICTIVE NUZZLE     63   56    0
87.261     53.505 1889  345.5( 473) 1.3278 29.269 2064
87.261      0.459  522   -3.0( 124) 1.3984 29.268 1116 3.751 4179 1.870 0.06961 34.558 1.9371   4714  4.521 136.5
```

XABS	P-IB	P-OB	PDA	WOX	W-IB	G-OB	CAWALL	P-IE/PSO	P-IH/PIO	P-OB/PSO	P-OB/PIO
6.981E-01	1.395E 00	0.000	-5.158E-01	0.000	0.000	0.000	2.470E-02	2.300E 00	3.359E-03	0.000	0.000
1.836E 01	1.395E 00	0.000	-4.658E 01	0.000	0.000	0.000	1.634E 02	2.300E 00	3.359E-03	0.000	0.000
3.070E 01	2.530E 00	0.000	-2.055E 02	0.000	0.000	0.000	5.053E 02	4.171E 00	6.093E-03	0.000	0.000
3.508E 01	4.207E 00	0.000	-4.238E 02	0.000	0.000	0.000	6.804E 02	6.937E 00	1.013E-02	0.000	0.000
3.516E 01	4.238E 00	6.024E 00	-4.896E 02	0.000	0.000	0.000	6.841E 02	6.987E 00	1.021E-02	9.933E 00	1.451E-02
3.517E 01	4.240E 00	6.001E 00	-4.897E 02	0.000	0.000	0.000	6.843E 02	6.991E 00	1.021E-02	9.894E 00	1.445E-02
3.555E 01	4.360E 00	4.498E 00	-4.984E 02	0.000	0.000	0.000	7.225E 02	7.222E 00	1.055E-02	7.417E 00	1.083E-02
3.583E 01	4.366E 00	3.375E 00	-5.107E 02	-1.298E 02	-1.298E 02	0.000	7.515E 02	7.199E 00	1.051E-02	5.565E 00	8.128E-03
3.606E 01	4.355E 00	4.813E 00	-5.208E 02	-1.315E 02	-1.315E 02	0.000	7.745E 02	7.181E 00	1.049E-02	7.935E 00	1.159E-02
3.648E 01	4.783E 00	7.495E 00	-5.340E 02	-1.347E 02	-1.347E 02	0.000	8.183E 02	7.886E 00	1.152E-02	1.236E 01	1.805E-02
3.701E 01	4.545E 00	1.088E 01	-5.487E 02	-1.724E 02	-1.390E 02	-3.342E 01	8.743E 02	7.494E 00	1.095E-02	1.794E 01	2.620E-02
3.729E 01	5.861E 00	1.270E 01	-5.566E 02	-1.848E 02	-1.414E 02	-4.341E 01	9.048E 02	9.663E 00	1.411E-02	2.094E 01	3.058E-02
3.803E 01	9.255E 00	1.526E 01	-6.110E 02	-2.166E 02	-1.479E 02	-6.871E 01	9.851E 02	1.526E 01	2.229E-02	2.516E 01	3.674E-02
3.831E 01	1.222E 01	1.625E 01	-6.378E 02	-2.293E 02	-1.508E 02	-7.846E 01	1.017E 03	2.015E 01	2.944E-02	2.679E 01	3.913E-02
3.875E 01	1.675E 01	1.634E 01	-6.883E 02	-2.494E 02	-1.561E 02	-9.330E 01	1.066E 03	2.763E 01	4.035E-02	2.695E 01	3.936E-02
3.878E 01	1.712E 01	1.635E 01	-6.923E 02	-2.511E 02	-1.566E 02	-9.449E 01	1.070E 03	2.822E 01	4.122E-02	2.696E 01	3.937E-02
3.901E 01	1.946E 01	1.717E 01	-7.160E 02	-2.620E 02	-1.598E 02	-1.021E 02	1.096E 03	3.209E 01	4.687E-02	2.830E 01	4.134E-02
3.929E 01	1.888E 01	1.820E 01	-7.405E 02	-2.762E 02	-1.645E 02	-1.118E 02	1.129E 03	3.113E 01	4.547E-02	3.001E 01	4.383E-02
3.950E 01	1.846E 01	1.270E 01	-7.546E 02	-2.869E 02	-1.682E 02	-1.187E 02	1.152E 03	3.044E 01	4.446E-02	2.093E 01	3.057E-02
3.978E 01	1.959E 01	5.050E 00	-7.801E 02	-3.020E 02	-1.739E 02	-1.281E 02	1.185E 03	3.230E 01	4.717E-02	8.326E 00	1.216E-02
4.000E 01	2.044E 01	5.032E 00	-8.044E 02	-3.138E 02	-1.787E 02	-1.351E 02	1.211E 03	3.370E 01	4.922E-02	8.296E 00	1.212E-02
4.040E 01	2.360E 01	4.998E 00	-8.505E 02	-3.364E 02	-1.883E 02	-1.481E 02	1.257E 03	3.891E 01	5.683E-02	8.240E 00	1.204E-02
4.041E 01	2.368E 01	4.997E 00	-8.515E 02	-3.370E 02	-1.886E 02	-1.484E 02	1.259E 03	3.904E 01	5.702E-02	8.239E 00	1.203E-02
4.128E 01	3.055E 01	4.923E 00	-9.638E 02	-3.953E 02	-2.123E 02	-1.830E 02	1.362E 03	5.037E 01	7.397E-02	8.117E 00	1.185E-02
4.134E 01	3.106E 01	4.917E 00	-9.727E 02	-4.003E 02	-2.143E 02	-1.860E 02	1.369E 03	5.122E 01	7.480E-02	8.107E 00	1.184E-02
4.150E 01	3.229E 01	5.662E 00	-9.942E 02	-4.124E 02	-2.190E 02	-1.934E 02	1.388E 03	5.324E 01	7.775E-02	9.336E 00	1.364E-02
4.246E 01	1.976E 01	1.027E 01	-1.072E 03	-4.920E 02	-2.502E 02	-2.419E 02	1.503E 03	3.258E 01	4.759E-02	1.694E 01	2.474E-02
4.406E 01	2.504E 01	1.798E 01	-1.109E 03	-6.326E 02	-3.025E 02	-3.300E 02	1.697E 03	4.128E 01	6.029E-02	2.965E 01	4.330E-02
4.431E 01	2.584E 01	1.827E 01	-1.115E 03	-6.534E 02	-3.102E 02	-3.432E 02	1.727E 03	4.261E 01	6.223E-02	3.012E 01	4.400E-02
4.478E 01	2.738E 01	1.882E 01	-1.128E 03	-6.890E 02	-3.245E 02	-3.645E 02	1.784E 03	4.515E 01	6.595E-02	3.103E 01	4.533E-02
4.480E 01	2.745E 01	1.884E 01	-1.128E 03	-6.904E 02	-3.251E 02	-3.653E 02	1.786E 03	4.526E 01	6.610E-02	3.107E 01	4.538E-02
4.626E 01	2.164E 01	2.056E 01	-1.116E 03	-7.771E 02	-3.674E 02	-4.097E 02	1.966E 03	3.567E 01	5.211E-02	3.390E 01	4.951E-02
4.730E 01	1.748E 01	2.179E 01	-1.060E 03	-8.202E 02	-3.957E 02	-4.325E 02	2.095E 03	2.882E 01	4.209E-02	3.592E 01	5.247E-02
4.731E 01	1.746E 01	2.176E 01	-1.061E 03	-8.205E 02	-3.958E 02	-4.326E 02	2.096E 03	2.878E 01	4.204E-02	3.588E 01	5.240E-02
4.811E 01	1.084E 01	1.754E 01	-1.003E 03	-8.658E 02	-4.164E 02	-4.494E 02	2.196E 03	1.787E 01	2.610E-02	2.892E 01	4.224E-02
4.875E 01	1.413E 01	1.413E 01	-9.530E 02	-8.941E 02	-4.323E 02	-4.618E 02	2.276E 03	2.330E 01	3.404E-02	2.330E 01	3.404E-02
4.928E 01	1.134E 01	1.134E 01	-9.178E 02	-9.162E 02	-4.450E 02	-4.713E 02	2.343E 03	1.869E 01	2.730E-02	1.869E 01	2.730E-02
5.069E 01	9.900E 00	9.900E 00	-8.393E 02	-9.754E 02	-4.766E 02	-4.988E 02	2.521E 03	1.632E 01	2.384E-02	1.632E 01	2.384E-02
5.279E 01	6.250E 00	6.250E 00	-7.504E 02	-1.053E 03	-5.185E 02	-5.341E 02	2.707E 03	1.030E 01	1.505E-02	1.030E 01	1.505E-02
5.329E 01	5.817E 00	5.817E 00	-7.347E 02	-1.067E 03	-5.275E 02	-5.398E 02	2.851E 03	9.591E 00	1.401E-02	9.591E 00	1.401E-02
5.404E 01	5.262E 00	5.262E 00	-7.133E 02	-1.088E 03	-5.404E 02	-5.478E 02	2.946E 03	8.676E 00	1.267E-02	8.676E 00	1.267E-02
5.480E 01	4.700E 00	4.700E 00	-6.940E 02	-1.108E 03	-5.527E 02	-5.555E 02	3.044E 03	7.749E 00	1.132E-02	7.749E 00	1.132E-02
5.576E 01	4.531E 00	4.531E 00	-6.719E 02	-1.132E 03	-5.670E 02	-5.647E 02	3.167E 03	7.471E 00	1.091E-02	7.471E 00	1.091E-02
5.623E 01	4.448E 00	4.448E 00	-6.303E 02	-1.142E 03	-5.730E 02	-5.689E 02	3.209E 03	7.334E 00	1.071E-02	7.334E 00	1.071E-02
5.628E 01	1.900E 00	4.438E 00	-6.290E 02	-1.143E 03	-5.736E 02	-5.694E 02	3.217E 03	3.133E 00	4.576E-03	7.316E 00	1.069E-02
5.642E 01	1.900E 00	4.414E 00	-6.261E 02	-1.146E 03	-5.751E 02	-5.706E 02	3.234E 03	3.133E 00	4.576E-03	7.277E 00	1.063E-02
5.650E 01	4.399E 00	4.399E 00	-6.244E 02	-1.147E 03	-5.760E 02	-5.713E 02	3.245E 03	7.254E 00	1.059E-02	7.254E 00	1.059E-02
5.678E 01	4.350E 00	4.350E 00	-6.186E 02	-1.153E 03	-5.790E 02	-5.737E 02	3.280E 03	7.172E 00	1.048E-02	7.172E 00	1.048E-02
5.701E 01	4.314E 00	4.314E 00	-6.144E 02	-1.157E 03	-5.813E 02	-5.756E 02	3.309E 03	7.113E 00	1.039E-02	7.113E 00	1.039E-02
5.773E 01	4.200E 00	4.200E 00	-6.029E 02	-1.170E 03	-5.882E 02	-5.815E 02	3.402E 03	6.925E 00	1.011E-02	6.925E 00	1.011E-02
5.875E 01	4.162E 00	4.162E 00	-5.932E 02	-1.186E 03	-5.965E 02	-5.897E 02	3.532E 03	6.863E 00	1.002E-02	6.863E 00	1.002E-02
6.076E 01	2.250E 00	2.250E 00	-5.925E 02	-1.211E 03	-6.090E 02	-6.015E 02	3.790E 03	3.710E 00	5.418E-03	3.710E 00	5.418E-03
6.218E 01	1.800E 00	1.800E 00	-5.925E 02	-1.223E 03	-6.155E 02	-6.072E 02	3.972E 03	2.968E 00	4.335E-03	2.968E 00	4.335E-03
6.465E 01	5.610E 00	5.610E 00	-5.925E 02	-1.245E 03	-6.242E 02	-6.207E 02	4.289E 03	9.250E 00	1.351E-02	9.250E 00	1.351E-02
6.502E 01	3.675E 00	6.191E 00	-5.925E 02	-1.249E 03	-6.252E 02	-6.235E 02	4.337E 03	6.059E 00	8.850E-03	1.021E 01	1.491E-02
6.506E 01	3.675E 00	6.253E 00	-5.925E 02	-1.249E 03	-6.254E 02	-6.238E 02	4.342E 03	6.059E 00	8.850E-03	1.031E 01	1.506E-02

READING = 0093 BLOCK = 39 TIME = 134.029 MACH 5.2 PT = 415.249 TT = 2026.1

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CA-ALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.526E 01	3.597E 00	6.562E 00	-5.925E 02	-1.251E 03	-6.259E 02	-6.254E 02	4.368E 03	5.931E 00	8.662E-03	1.082E 01	1.580E-02
6.692E 01	2.950E 00	4.375E 00	-5.410E 02	-1.267E 03	-6.305E 02	-6.362E 02	4.583E 03	4.864E 00	7.104E-03	7.213E 00	1.054E-02
6.759E 01	2.364E 00	3.360E 00	-4.751E 02	-1.272E 03	-6.326E 02	-6.392E 02	4.665E 03	3.897E 00	5.692E-03	5.540E 00	8.092E-03
6.836E 01	1.690E 00	2.701E 00	-4.068E 02	-1.277E 03	-6.349E 02	-6.424E 02	4.760E 03	2.786E 00	4.070E-03	4.454E 00	6.505E-03
6.908E 01	1.823E 00	2.085E 00	-3.536E 02	-1.283E 03	-6.372E 02	-6.457E 02	4.848E 03	3.005E 00	4.389E-03	3.438E 00	5.021E-03
6.969E 01	1.935E 00	1.549E 00	-3.130E 02	-1.287E 03	-6.391E 02	-6.482E 02	4.922E 03	3.190E 00	4.660E-03	2.554E 00	3.731E-03
7.064E 01	1.728E 00	7.150E-01	-2.635E 02	-1.292E 03	-6.421E 02	-6.503E 02	5.036E 03	2.850E 00	4.162E-03	1.179E 00	1.722E-03
7.107E 01	1.635E 00	8.795E-01	-2.449E 02	-1.294E 03	-6.435E 02	-6.508E 02	5.088E 03	2.696E 00	3.937E-03	1.450E 00	2.118E-03
7.260E 01	1.038E 00	1.465E 00	-1.840E 02	-1.300E 03	-6.475E 02	-6.525E 02	5.273E 03	1.712E 00	2.501E-03	2.415E 00	3.528E-03
7.275E 01	9.800E-01	1.286E 00	-1.789E 02	-1.301E 03	-6.478E 02	-6.527E 02	5.290E 03	1.616E 00	2.360E-03	2.120E 00	3.097E-03
7.350E 01	8.286E-01	3.900E-01	-1.496E 02	-1.303E 03	-6.493E 02	-6.539E 02	5.374E 03	1.366E 00	1.995E-03	6.430E-01	9.392E-04
7.351E 01	8.278E-01	3.852E-01	-1.488E 02	-1.303E 03	-6.493E 02	-6.539E 02	5.375E 03	1.365E 00	1.993E-03	6.352E-01	9.277E-04
7.483E 01	5.600E-01	0.000	-1.342E 02	-1.308E 03	-6.513E 02	-6.563E 02	5.427E 03	9.233E-01	1.349E-03	0.000	0.000
7.768E 01	4.400E-01	0.000	-1.142E 02	-1.310E 03	-6.541E 02	-6.563E 02	5.525E 03	7.255E-01	1.060E-03	0.000	0.000
8.158E 01	5.250E-01	0.000	-9.353E 01	-1.312E 03	-6.556E 02	-6.563E 02	5.630E 03	8.656E-01	1.264E-03	0.000	0.000
8.439E 01	5.700E-01	0.000	-8.137E 01	-1.312E 03	-6.561E 02	-6.563E 02	5.684E 03	9.398E-01	1.373E-03	0.000	0.000
8.725E 01	6.900E-01	0.000	-6.617E 01	-1.313E 03	-6.568E 02	-6.563E 02	5.707E 03	1.138E 00	1.662E-03	0.000	0.000
8.726E 01	6.903E-01	0.000	-6.616E 01	-1.313E 03	-6.568E 02	-6.563E 02	5.707E 03	1.138E 00	1.662E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.139E 02	1.139E 02	2.213E-03	5.236E-02
4.041E 01	1.628E-01	1.140E 02	2.219E-03	5.357E-02
4.128E 01	1.406E 01	1.281E 02	2.330E-03	5.714E-02
4.134E 01	1.048E 00	1.291E 02	2.339E-03	5.744E-02
4.150E 01	2.495E 00	1.316E 02	2.359E-03	5.816E-02
4.246E 01	1.522E 01	1.468E 02	2.432E-03	5.909E-02
4.406E 01	2.456E 01	1.714E 02	2.473E-03	5.911E-02
4.431E 01	3.649E 00	1.750E 02	2.483E-03	5.922E-02
4.478E 01	6.979E 00	1.820E 02	2.503E-03	5.954E-02
4.480E 01	2.981E-01	1.823E 02	2.504E-03	5.953E-02
4.626E 01	2.111E 01	2.034E 02	2.515E-03	5.825E-02
4.730E 01	1.441E 01	2.178E 02	2.474E-03	5.111E-02
4.731E 01	7.765E-02	2.179E 02	2.475E-03	5.123E-02
4.811E 01	1.053E 01	2.285E 02	2.431E-03	4.663E-02
4.875E 01	8.033E 00	2.365E 02	2.392E-03	4.214E-02
4.928E 01	6.210E 00	2.427E 02	2.364E-03	3.861E-02
5.069E 01	1.496E 01	2.577E 02	2.298E-03	3.169E-02
5.279E 01	1.896E 01	2.766E 02	2.227E-03	2.509E-02
5.329E 01	4.029E 00	2.806E 02	2.215E-03	2.390E-02
5.404E 01	5.765E 00	2.864E 02	2.198E-03	2.236E-02
5.480E 01	5.534E 00	2.919E 02	2.182E-03	2.090E-02
5.576E 01	6.570E 00	2.985E 02	2.165E-03	1.939E-02
5.623E 01	2.004E 00	3.005E 02	2.117E-03	1.523E-02
5.628E 01	2.931E-01	3.006E 02	2.116E-03	1.518E-02
5.642E 01	7.355E-01	3.015E 02	2.114E-03	1.505E-02
5.650E 01	4.240E-01	3.020E 02	2.107E-03	1.516E-02
5.678E 01	1.480E 00	3.035E 02	2.100E-03	1.506E-02
5.701E 01	1.192E 00	3.046E 02	2.094E-03	1.499E-02
5.773E 01	3.788E 00	3.084E 02	2.082E-03	1.465E-02
5.875E 01	5.273E 00	3.137E 02	2.073E-03	1.447E-02
6.076E 01	1.051E 01	3.242E 02	2.074E-03	1.500E-02
6.218E 01	7.628E 00	3.318E 02	2.075E-03	1.541E-02
8.726E 01	1.309E 01	3.449E 02	2.096E-03	1.477E-02
6.465E 01	1.341E 01	3.602E 02	2.098E-03	1.544E-02
6.502E 01	1.980E 00	3.622E 02	2.072E-03	1.408E-02
6.506E 01	2.036E-01	3.624E 02	2.073E-03	1.415E-02
6.526E 01	1.025E 00	3.634E 02	2.076E-03	1.437E-02
6.692E 01	7.918E 00	3.714E 02	2.010E-03	1.133E-02
6.759E 01	2.526E 00	3.739E 02	1.964E-03	9.400E-03
6.836E 01	2.501E 00	3.764E 02	1.915E-03	7.778E-03
6.908E 01	2.049E 00	3.784E 02	1.892E-03	7.126E-03
6.969E 01	1.600E 00	3.800E 02	1.871E-03	6.541E-03
7.064E 01	2.127E 00	3.822E 02	1.811E-03	5.021E-03
7.107E 01	8.630E-01	3.830E 02	1.814E-03	5.125E-03
7.260E 01	3.077E 00	3.861E 02	1.808E-03	5.094E-03
7.275E 01	2.777E-01	3.864E 02	1.792E-03	4.729E-03
7.350E 01	1.082E 00	3.875E 02	1.696E-03	2.973E-03
7.351E 01	1.642E-03	3.875E 02	1.695E-03	2.963E-03
7.483E 01	5.102E-01	3.880E 02	1.680E-03	2.765E-03
7.768E 01	8.616E-01	3.888E 02	1.638E-03	2.512E-03
8.158E 01	8.942E-01	3.897E 02	1.653E-03	2.622E-03
8.439E 01	5.060E-01	3.902E 02	1.657E-03	2.775E-03
8.725E 01	2.307E-01	3.905E 02	1.677E-03	3.186E-03
8.726E 01	0.000	3.905E 02	1.677E-03	3.187E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-452.	(LBF)
MEASURED THRUST	-509.	(LBF)
CALCULATED SPECIFIC IMPULSE	-452.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-509.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.1572	
MEASURED THRUST COEFFICIENT	-.1771	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	113.9	(LBF)
INLET MOMENTUM CHANGE	-964.4	(LBF)
COMBUSTOR FRICTION DRAG	218.0	(LBF)
COMBUSTOR STRUT DRAG	7.03	(LBF)
COMBUSTOR MOMENTUM CHANGE	33.	(LBF)
NOZZLE FRICTION DRAG	43.65	(LBF)
NOZZLE STRUT DRAG	3.47	(LBF)
NOZZLE MOMENTUM CHANGE	479.	(LBF)
NOZZLE PRESSURE INTEGRAL	526.	(LBF)
EXTERNAL FRICTION DRAG	51.36	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1279.	(LBF)
TOTAL EXTERNAL DRAG	-1330.	(LBF)
TOTAL STRUT DRAG	10.49	(LBF)
CAVITY FORCE	-1298.	(LBF)
CALCULATED LOAD CELL FORCE	-3080.	(LBF)
MEASURED LOAD CELL FORCE	-3137.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2849	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	67.261	(IN)
STRUT LEADING EDGE	56.425	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	62.185	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8655	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2770	
DELTA PT2	0.1421	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4356	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2820	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9004	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9162	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9315	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.9005	
ENTHALPY AT PO - SUPERSONIC	-26.67	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-13.32	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTION EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.3911
COMBUSTOR EFFECTIVENESS	0.8091
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9850
NOZZLE COEFFICIENT - CT	0.9336
PROCESS EFFICIENCY	0.9268
KINETIC ENERGY EFFICIENCY	0.9682

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.270	
1C	44.300	
2A	48.745	
2C	46.250	
3A	54.035	
3B	56.220	
4	44.770	

Reading 93

t = 142.13 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

X	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	WORTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	415.749	2085	399.9(527)	1.3208	29.269	2163											
0.000	0.587	350	-44.4(83)	1.3985	29.266	912	5.170	4715	1.758	0.14961	33.145	0.8650	4988	10.963	150.5		
SPIKE TIP NS		2	0 6														
0.600	21.187	2085	399.9(527)	1.3208	29.269	2163											
0.600	19.162	2034	385.9(513)	1.3226	29.269	2138	0.392	839	1.960	0.14961	33.145	0.8650	5109	1.950	154.1		
WIND TUNNEL		3	0 0														
0.000	415.749	2085	399.9(527)	1.3208	29.269	2163											
0.000	0.613	355	-43.4(84)	1.3986	29.268	918	5.132	4710	1.758	0.15419	34.160	0.8650	5136	11.285	150.4		
SPIKE TIP NS		4	0 0														
0.600	21.187	2085	399.9(527)	1.3208	29.269	2163											
0.600	19.018	2031	384.6(512)	1.3227	29.269	2136	0.407	869	1.960	0.15419	34.160	0.8650	5136	[illegible]	150.4		
INLET THROAT		5	0 4														
40.400	181.205	2053	391.0(518)	1.3219	29.269	2147											
40.400	21.416	1191	160.5(288)	1.3638	29.268	1661	2.044	3396	1.810	1.15636	34.160	0.1119	4220	62.901	123.5		
INLET UPNRSK		6	0 3														
40.400	181.205	2053	391.0(518)	1.3219	29.269	2147											
40.400	19.081	1155	151.3(279)	1.3662	29.268	1637	2.115	3463	1.810	1.08341	34.160	0.1231	4279	58.312	125.3		
INLET_DNNRSK		7	0 4														
40.400	117.759	2053	391.0(518)	1.3219	29.269	2147											
40.400	96.754	1957	364.3(492)	1.3253	29.269	2099	0.551	1157	1.839	1.08341	34.160	0.1231	4279	19.476	125.3		
COMBUSTOR	0	8	1 5														
40.410	181.005	2053	391.0(518)	1.3219	29.269	2147											
40.410	22.629	1209	165.1(293)	1.3627	29.268	1673	2.010	3362	1.810	1.19160	34.160	0.1119	4219	62.264	123.5		
COMBUSTOR	0	9	2 5														
41.286	152.163	2047	389.3(517)	1.3221	29.269	2144											
41.286	26.378	1318	192.0(320)	1.3561	29.268	1740	1.806	3142	1.821	1.19436	34.160	0.1117	4090	56.318	119.7		
COMBUSTOR	0	10	3 5														
41.351	150.333	2046	389.2(516)	1.3221	29.269	2144											
41.351	26.710	1322	194.1(322)	1.3556	29.268	1745											
							1.790	3124	1.822	1.19506	34.160	0.1116	4080	58.016	119.4		
COMBUSTOR	0	11	4 4														
41.500	146.271	2045	388.9(516)	1.3222	29.269	2143											
41.500	27.475	1341	199.0(326)	1.3545	29.268	1757	1.755	3082	1.823	1.19608	34.160	0.1115	4057	57.292	118.8		
COMBUSTOR	0	12	5 5														
42.460	130.667	2037	386.6(514)	1.3225	29.269	2139											
42.460	30.351	1411	217.3(345)	1.3503	29.268	1799	1.618	2910	1.830	1.18552	34.160	0.1125	3965	53.622	116.1		
COMBUSTOR	0	13	6 5														
44.071	119.737	2023	382.6(510)	1.3230	29.269	2132											
44.071	31.078	1442	225.2(353)	1.3486	29.268	1817	1.544	2806	1.834	1.14570	34.160	0.1164	3906	49.961	114.3		
COMBUSTOR	0	14	7 4														
44.310	118.666	2021	382.0(509)	1.3231	29.269	2131											
44.310	31.263	1446	226.3(354)	1.3484	29.268	1820	1.534	2791	1.834	1.14346	34.160	0.1166	3898	49.605	114.1		
COMBUSTOR	0	15	8 4														
44.786	116.868	2017	380.9(508)	1.3232	29.269	2129											
44.786	31.576	1452	228.0(355)	1.3480	29.268	1824	1.517	2766	1.835	1.13932	34.160	0.1171	3864	48.981	113.7		
COMBUSTOR	0	16	9 4														
44.800	116.782	2017	380.9(508)	1.3232	29.269	2129											
44.800	31.549	1452	228.0(355)	1.3480	29.268	1823	1.517	2766	1.835	1.13846	34.160	0.1171	3864	48.946	113.7		
COMBUSTOR	0	17	10 3														
46.260	114.709	2006	378.1(505)	1.3235	29.269	2124											
46.260	27.948	1406	215.9(343)	1.3506	29.268	1796	1.566	2848	1.835	1.07223	34.160	0.1244	3915	47.080	114.6		
COMBUSTOR	0	18	11 6														
47.310	120.075	2000	376.3(504)	1.3238	29.269	2121											
47.310	22.731	1312	191.4(319)	1.3563	29.268	1739	1.749	3041	1.831	0.99797	34.160	0.1336	4007	47.156	117.3		

READING = 0093 BLOCK = 48 TIME = 142.129 MACH 5.2 PI = 415.749 TI = 2064.7

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	M	A/AC	MOMTM	G	IVAC	PFI	ETAC
COMBUSTOR	0	19	12 0														
47.311	120.049	2000	376.3(584)	1.3238	29.269	2121											
47.311	22.770	1313	191.6(319)	1.3562	29.268	1739	1.748	3040	1.831	0.99870	34.160	0.1335	4006	47.176	117.3		
COMBUSTOR	0	20	13 10														
48.110	128.477	1993	374.3(502)	1.3240	29.269	2117											
48.110	18.544	1217	166.9(204)	1.3622	29.268	1678	1.920	3222	1.625	0.93011	34.160	0.1434	4101	46.567	120.1		
COMBUSTOR	0	21	14 6														
48.751	83.682	2205	399.2(642)	1.3193	25.490	2382											
48.751	48.097	1925	307.1(553)	1.3294	25.490	2234	0.945	2111	2.111	0.86978	34.575	0.1552	4160	28.532	120.9	0.28	0.16
COMBUSTOR	0	22	15 2														
48.761	83.031	2207	396.1(643)	1.3192	25.493	2383											
48.761	48.148	1928	307.3(554)	1.3293	25.492	2236	0.943	2109	2.111	0.86865	34.575	0.1554	4183	28.468	121.0	0.28	0.16
COMBUSTOR	0	23	16 4														
49.291	81.299	2325	393.0(679)	1.3136	25.616	2435											
49.291	50.875	2076	313.7(599)	1.3225	25.616	2306	0.866	2000	2.126	0.81239	34.575	0.1662	4314	25.251	124.6	0.28	0.23
COMBUSTOR	0	24	17 5														
50.701	73.952	2748	387.0(811)	1.2937	26.070	2604											
50.701	38.250	2360	258.8(684)	1.3072	26.071	2426	1.044	2532	2.172	0.69238	34.575	0.1950	4631	27.246	133.9	0.28	0.45
COMBUSTOR	0	25	18 5														
52.801	67.050	3058	377.8(912)	1.2784	26.316	2718											
52.801	27.150	2498	188.6(727)	1.2962	26.318	2475	1.243	3077	2.209	0.56948	34.696	0.2379	4972	27.228	143.3	0.29	0.62
COMBUSTOR	0	26	19 4														
53.301	65.972	3102	376.1(926)	1.2761	26.371	2732											
53.301	25.067	2500	172.5(727)	1.2975	26.372	2473	1.291	3192	2.213	0.54621	34.696	0.2480	5035	27.098	145.1	0.29	0.64
COMBUSTOR	0	27	20 4														
54.051	63.792	3195	373.8(956)	1.2713	26.482	2761											
54.051	23.419	2561	158.1(745)	1.2941	26.484	2495	1.317	3286	2.221	0.51487	34.696	0.2631	5121	26.290	147.6	0.29	0.69
COMBUSTOR	0	28	21 4														
54.811	61.978	3271	371.6(980)	1.2673	26.576	2785											
54.811	21.750	2602	142.4(757)	1.2916	26.579	2507	1.351	3386	2.227	0.48689	34.696	0.2782	5202	25.624	149.9	0.29	0.74
COMBUSTOR	0	29	22 4														
55.760	60.764	3313	369.0(994)	1.2649	26.633	2797											
55.760	19.233	2579	117.1(749)	1.2918	26.637	2494	1.424	3550	2.231	0.45644	34.696	0.2968	5290	25.183	152.5	0.29	0.76
COMBUSTOR	0	30	23 5														
56.236	49.565	3733	367.8(1129)	1.2399	27.138	2912											
56.236	17.972	3040	116.9(894)	1.2689	27.158	2657	1.334	3544	2.263	0.36816	34.696	0.3679	5515	20.274	159.0	0.29	1.00
COMBUSTOR	0	31	24 4														
56.291	53.046	3495	367.7(1052)	1.2545	26.850	2849											
56.291	14.538	2646	72.3(768)	1.2869	26.860	2510	1.551	3845	2.249	0.36719	34.696	0.3689	5520	21.939	159.1	0.29	0.87
COMBUSTOR	0	32	25 3														
56.431	53.958	3500	367.3(1054)	1.2542	26.857	2851											
56.431	14.352	2643	69.4(767)	1.2869	26.867	2509	1.539	3861	2.249	0.36449	34.696	0.3717	5530	21.871	159.4	0.29	0.87
COMBUSTOR	0	33	26 21														
56.511	50.273	3732	367.2(1129)	1.2400	27.139	2912											
56.511	17.242	3003	104.0(882)	1.2703	27.159	2643	1.373	3629	2.262	0.36857	34.696	0.3675	5536	20.784	159.6	0.29	1.00
COMBUSTOR	0	34	27 21														
56.791	50.719	3730	366.5(1128)	1.2401	27.139	2911											
56.791	16.500	2968	92.0(870)	1.2716	27.159	2629	1.410	3707	2.261	0.36735	34.696	0.3686	5556	21.161	160.1	0.29	1.00
COMBUSTOR	0	35	28 21														
57.017	50.906	3729	366.1(1128)	1.2402	27.139	2911											
57.017	14.811	2897	67.6(846)	1.2743	27.160	2600	1.467	3864	2.261	0.36666	34.696	0.3695	5569	22.020	160.5	0.29	1.00
COMBUSTOR	0	36	29 21														
57.741	47.944	3725	364.6(1126)	1.2402	27.139	2909											
57.741	9.400	2655	-13.6(767)	1.2832	27.161	2497	1.742	4350	2.265	0.36097	34.696	0.3753	5595	24.403	161.3	0.29	1.00
COMBUSTOR	0	37	30 21														
58.761	47.675	3720	362.7(1125)	1.2404	27.139	2907											
58.761	9.075	2631	-21.5(759)	1.2841	27.161	2487	1.763	4384	2.264	0.35667	34.696	0.3777	5606	24.458	161.6	0.29	1.00

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                P      T       H             GAMMA  MOLWT SONV  MACH  VEL    S      W/A       W     A/AC    MOMIM    G     IVAC  PHI  ETAC
COMBUSTOR       0    38   31 200
60.771     52.502 3710   358.6(1121) 1.2412 27.140 2905
60.771     19.425 3032   114.0( 891) 1.2642 27.159 2654 1.319 3500 2.256 0.37115 34.696 0.3650   5590 20.169 161.1 0.29 1.00
COMBUSTOR       0    39   32 200
62.191     52.498 3703   356.2(1119) 1.2416 27.141 2902
62.191     25.556 3205   174.3( 949) 1.2625 27.157 2722 1.108 3016 2.256 0.38121 34.696 0.3553   5579 17.869 160.6 0.29 1.00
COMBUSTOR       0    40   33 200
64.655     49.732 3690   351.1(1114) 1.2420 27.141 2897
64.655     22.931 3157   157.4( 933) 1.2643 27.157 2703 1.152 3114 2.258 0.36135 34.696 0.3749   5559 17.464 160.2 0.29 1.00
COMBUSTOR       0    41   34 200
65.031     46.085 3687   350.3(1113) 1.2419 27.141 2896
65.031     21.828 3172   162.9( 938) 1.2636 27.157 2709 1.130 3062 2.264 0.33593 34.696 0.4032   5557 15.986 160.1 0.29 1.00
COMBUSTOR  REGEN     42   35   5
65.031     46.085 3776   384.4(1144) 1.2374 27.135 2926
65.031     16.142 3057   122.6( 900) 1.2661 27.159 2664 1.359 3620 2.273 0.33593 34.696 0.4032   5571 16.897 160.6 0.29 1.00
NOZZLE  AE           43   36   4
87.267     46.085 3687   350.3(1110) 1.2419 27.141 2896
87.267      1.074 1595  -347.3( 435) 1.3264 27.162 1968 3.003 5908 2.264 0.06993 34.696 1.9371   6904  6.420 199.0 0.29 1.00
NOZZLE  PU           44   37   4
87.267     46.085 3687   350.3(1110) 1.2419 27.141 2896
87.267      0.613 1386  -408.4( 374) 1.3384 27.162 1843 3.343 6161 2.264 0.04787 34.696 2.8500   7068  4.583 204.3 0.29 1.00
NOZZLE  AE REGEN     45   38   4
87.267     46.085 3776   384.4(1144) 1.2374 27.135 2926
87.267      1.101 1654  -329.4( 453) 1.3232 27.162 2002 2.985 5976 2.273 0.06993 34.696 1.9371   6991  6.495 201.5 0.29 1.00
NOZZLE  PU REGEN     46   39   4
87.267     46.085 3776   384.4(1144) 1.2374 27.135 2926
87.267      0.613 1431  -395.5( 387) 1.3357 27.162 1870 3.340 6247 2.273 0.04703 34.696 2.8806   7189  4.565 207.2 0.29 1.00
FICTIVE COMBUSTR     66   59   0
65.031    181.205 3694   350.3(1116) 1.2459 27.148 2903
65.031      0.613  970  -525.4( 257) 1.3649 27.162 1557 4.252 6619 2.163 0.07348 34.696 1.8436   7428  7.559 214.1 0.29 1.00
FICTIVE NOZZLE       67   60   0
87.267     31.352 3659   340.6(1104) 1.2418 27.140 2885
87.267      1.298 1818  -280.0( 502) 1.3154 27.162 2092 2.664 5573 2.289 0.06993 34.696 1.9371   6654  6.057 191.8 0.29 1.00
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XABS	P-IB	P-OB	PDA	QUA	Q-IB	Q-OB	CA-ALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PIO
6.981E-01	1.395E 00	0.000	-5.184E-01	0.000	0.000	0.000	2.470E-02	2.277E 00	3.355E-03	0.000	0.000
1.836E 01	1.395E 00	0.000	-4.638E 01	0.000	0.000	0.000	1.654E 02	2.277E 00	3.355E-03	0.000	0.000
3.070E 01	2.540E 00	0.000	-2.059E 02	0.000	0.000	0.000	5.053E 02	4.145E 00	6.109E-03	0.000	0.000
3.508E 01	4.225E 00	0.000	-4.251E 02	0.000	0.000	0.000	6.804E 02	6.895E 00	1.016E-02	0.000	0.000
3.517E 01	4.259E 00	6.031E 00	-4.915E 02	0.000	0.000	0.000	6.843E 02	6.950E 00	1.024E-02	9.843E 00	1.451E-02
3.517E 01	4.261E 00	6.008E 00	-4.916E 02	0.000	0.000	0.000	6.846E 02	6.954E 00	1.025E-02	9.804E 00	1.445E-02
3.555E 01	4.405E 00	4.539E 00	-5.002E 02	0.000	0.000	0.000	7.222E 02	7.189E 00	1.060E-02	7.408E 00	1.092E-02
3.584E 01	4.391E 00	3.400E 00	-5.128E 02	-1.270E 02	-1.270E 02	0.000	7.518E 02	7.165E 00	1.056E-02	5.549E 00	8.178E-03
3.606E 01	4.380E 00	4.798E 00	-5.226E 02	-1.286E 02	-1.286E 02	0.000	7.743E 02	7.148E 00	1.054E-02	7.829E 00	1.154E-02
3.648E 01	4.790E 00	7.476E 00	-5.363E 02	-1.317E 02	-1.317E 02	0.000	8.178E 02	7.817E 00	1.152E-02	1.220E 01	1.798E-02
3.701E 01	4.552E 00	1.086E 01	-5.513E 02	-1.600E 02	-1.359E 02	-2.413E 01	8.738E 02	7.429E 00	1.095E-02	1.772E 01	2.611E-02
3.730E 01	5.900E 00	1.271E 01	-5.589E 02	-1.698E 02	-1.383E 02	-3.151E 01	9.051E 02	9.629E 00	1.419E-02	2.075E 01	3.058E-02
3.803E 01	9.277E 00	1.530E 01	-6.133E 02	-1.943E 02	-1.447E 02	-4.965E 01	9.848E 02	1.514E 01	2.232E-02	2.497E 01	3.681E-02
3.832E 01	1.233E 01	1.634E 01	-6.407E 02	-2.046E 02	-1.477E 02	-5.684E 01	1.017E 03	2.012E 01	2.965E-02	2.666E 01	3.930E-02
3.875E 01	1.682E 01	1.642E 01	-6.907E 02	-2.211E 02	-1.537E 02	-6.740E 01	1.066E 03	2.746E 01	4.047E-02	2.679E 01	3.949E-02
3.879E 01	1.725E 01	1.642E 01	-6.955E 02	-2.228E 02	-1.544E 02	-6.841E 01	1.070E 03	2.816E 01	4.150E-02	2.680E 01	3.951E-02
3.901E 01	1.955E 01	1.717E 01	-7.186E 02	-2.320E 02	-1.582E 02	-7.377E 01	1.095E 03	3.190E 01	4.702E-02	2.802E 01	4.130E-02
3.930E 01	1.897E 01	1.816E 01	-7.438E 02	-2.451E 02	-1.643E 02	-8.088E 01	1.129E 03	3.096E 01	4.563E-02	2.964E 01	4.369E-02
3.950E 01	1.857E 01	1.279E 01	-7.576E 02	-2.547E 02	-1.690E 02	-8.570E 01	1.152E 03	3.031E 01	4.468E-02	2.088E 01	3.077E-02
3.979E 01	1.975E 01	4.950E 00	-7.839E 02	-2.695E 02	-1.769E 02	-9.263E 01	1.186E 03	3.223E 01	4.751E-02	8.078E 00	1.191E-02
4.000E 01	2.060E 01	4.936E 00	-8.079E 02	-2.806E 02	-1.833E 02	-9.754E 01	1.210E 03	3.361E 01	4.954E-02	8.055E 00	1.187E-02
4.040E 01	2.372E 01	4.909E 00	-8.545E 02	-3.035E 02	-1.966E 02	-1.069E 02	1.257E 03	3.672E 01	5.706E-02	8.011E 00	1.181E-02
4.041E 01	2.380E 01	4.908E 00	-8.556E 02	-3.041E 02	-1.970E 02	-1.071E 02	1.258E 03	3.884E 01	5.725E-02	8.010E 00	1.181E-02
4.129E 01	3.065E 01	4.850E 00	-9.695E 02	-3.622E 02	-2.301E 02	-1.321E 02	1.362E 03	5.002E 01	7.372E-02	7.914E 00	1.166E-02
4.135E 01	3.116E 01	4.845E 00	-9.785E 02	-3.671E 02	-2.328E 02	-1.343E 02	1.370E 03	5.085E 01	7.495E-02	7.907E 00	1.165E-02
4.150E 01	3.232E 01	5.588E 00	-9.992E 02	-3.765E 02	-2.391E 02	-1.394E 02	1.367E 03	5.275E 01	7.775E-02	9.119E 00	1.344E-02
4.246E 01	1.935E 01	1.037E 01	-1.076E 03	-4.563E 02	-2.821E 02	-1.742E 02	1.502E 03	3.158E 01	4.654E-02	1.692E 01	2.494E-02
4.407E 01	2.490E 01	1.839E 01	-1.110E 03	-5.925E 02	-3.543E 02	-2.382E 02	1.697E 03	4.064E 01	5.989E-02	3.002E 01	4.424E-02
4.431E 01	2.572E 01	2.004E 01	-1.115E 03	-6.121E 02	-3.645E 02	-2.476E 02	1.726E 03	4.198E 01	6.187E-02	3.270E 01	4.820E-02
4.479E 01	2.736E 01	2.331E 01	-1.121E 03	-6.404E 02	-3.844E 02	-2.640E 02	1.784E 03	4.466E 01	6.582E-02	3.805E 01	5.608E-02
4.480E 01	2.741E 01	2.341E 01	-1.121E 03	-6.494E 02	-3.850E 02	-2.645E 02	1.786E 03	4.474E 01	6.594E-02	3.820E 01	5.631E-02
4.626E 01	2.976E 01	3.346E 01	-1.069E 03	-7.497E 02	-4.439E 02	-3.019E 02	1.966E 03	4.856E 01	7.158E-02	5.460E 01	8.047E-02
4.731E 01	3.144E 01	4.068E 01	-9.614E 02	-8.081E 02	-4.848E 02	-3.233E 02	2.096E 03	5.131E 01	7.563E-02	6.639E 01	9.785E-02
4.731E 01	3.147E 01	4.069E 01	-9.621E 02	-8.081E 02	-4.848E 02	-3.233E 02	2.096E 03	5.136E 01	7.570E-02	6.640E 01	9.787E-02
4.811E 01	5.565E 01	4.480E 01	-8.559E 02	-8.742E 02	-5.152E 02	-3.590E 02	2.195E 03	9.082E 01	1.339E-01	7.311E 01	1.078E-01
4.875E 01	4.810E 01	4.810E 01	-7.178E 02	-9.550E 02	-5.391E 02	-4.160E 02	2.276E 03	7.849E 01	1.157E-01	7.849E 01	1.157E-01
4.876E 01	4.815E 01	4.815E 01	-7.152E 02	-9.565E 02	-5.394E 02	-4.171E 02	2.277E 03	7.857E 01	1.158E-01	7.857E 01	1.158E-01
4.929E 01	5.087E 01	5.087E 01	-5.785E 02	-1.043E 03	-5.589E 02	-4.841E 02	2.343E 03	8.302E 01	1.224E-01	8.302E 01	1.224E-01
5.070E 01	3.825E 01	3.825E 01	-2.490E 02	-1.273E 03	-6.092E 02	-6.638E 02	2.521E 03	6.242E 01	9.200E-02	6.242E 01	9.200E-02
5.280E 01	2.715E 01	2.715E 01	1.110E 02	-1.547E 03	-6.803E 02	-8.664E 02	2.787E 03	4.431E 01	6.530E-02	4.431E 01	6.530E-02
5.330E 01	2.507E 01	2.507E 01	1.789E 02	-1.603E 03	-6.966E 02	-9.060E 02	2.851E 03	4.091E 01	6.029E-02	4.091E 01	6.029E-02
5.405E 01	2.342E 01	2.342E 01	2.727E 02	-1.683E 03	-7.205E 02	-9.624E 02	2.947E 03	3.822E 01	5.633E-02	3.822E 01	5.633E-02
5.481E 01	2.175E 01	2.175E 01	3.603E 02	-1.760E 03	-7.442E 02	-1.016E 03	3.044E 03	3.549E 01	5.232E-02	3.549E 01	5.232E-02
5.576E 01	1.923E 01	1.923E 01	4.577E 02	-1.850E 03	-7.729E 02	-1.077E 03	3.106E 03	3.139E 01	4.626E-02	3.139E 01	4.626E-02
5.624E 01	1.797E 01	1.797E 01	6.850E 02	-1.892E 03	-7.856E 02	-1.106E 03	3.209E 03	2.933E 01	4.323E-02	2.933E 01	4.323E-02
5.629E 01	1.125E 01	1.783E 01	6.901E 02	-1.896E 03	-7.869E 02	-1.109E 03	3.217E 03	1.836E 01	2.706E-02	2.909E 01	4.288E-02
5.643E 01	1.125E 01	1.745E 01	7.016E 02	-1.907E 03	-7.901E 02	-1.117E 03	3.234E 03	1.836E 01	2.706E-02	2.848E 01	4.198E-02
5.651E 01	1.724E 01	1.724E 01	7.086E 02	-1.914E 03	-7.920E 02	-1.122E 03	3.245E 03	2.814E 01	4.147E-02	2.814E 01	4.147E-02
5.679E 01	1.650E 01	1.650E 01	7.306E 02	-1.935E 03	-7.984E 02	-1.137E 03	3.280E 03	2.693E 01	3.969E-02	2.693E 01	3.969E-02
5.702E 01	1.481E 01	1.481E 01	7.458E 02	-1.952E 03	-8.036E 02	-1.148E 03	3.309E 03	2.417E 01	3.562E-02	2.417E 01	3.562E-02
5.774E 01	9.400E 00	9.400E 00	7.787E 02	-2.002E 03	-8.195E 02	-1.182E 03	3.402E 03	1.534E 01	2.261E-02	1.534E 01	2.261E-02
5.876E 01	9.075E 00	9.075E 00	8.001E 02	-2.070E 03	-8.409E 02	-1.229E 03	3.532E 03	1.481E 01	2.183E-02	1.481E 01	2.183E-02
6.077E 01	1.942E 01	1.942E 01	8.034E 02	-2.203E 03	-8.815E 02	-1.322E 03	3.790E 03	3.170E 01	4.672E-02	3.170E 01	4.672E-02
6.219E 01	2.556E 01	2.556E 01	8.034E 02	-2.296E 03	-9.131E 02	-1.383E 03	3.972E 03	4.171E 01	6.147E-02	4.171E 01	6.147E-02
6.465E 01	2.293E 01	2.293E 01	8.034E 02	-2.472E 03	-9.630E 02	-1.469E 03	4.289E 03	3.742E 01	5.516E-02	3.742E 01	5.516E-02
6.503E 01	2.112E 01	2.253E 01	8.034E 02	-2.501E 03	-9.954E 02	-1.506E 03	4.337E 03	3.447E 01	5.081E-02	3.677E 01	5.419E-02

READING = 0093 BLOCK = 48 TIME = 142.129 MACH 5.2 PI = 415.749 TI = 2004.7

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAPALL	P-IB/P80	P-IB/PI0	P-OB/P80	P-OB/PI0
6.507E 01	2.112E 01	2.249E 01	8.034E 02	-2.504E 03	-9.968E 02	-1.507E 03	4.542E 03	3.447E 01	5.081E-02	3.670E 01	5.409E-02
6.527E 01	1.997E 01	2.227E 01	8.034E 02	-2.519E 03	-1.003E 03	-1.516E 03	4.368E 03	3.259E 01	4.803E-02	3.635E 01	5.358E-02
6.693E 01	1.036E 01	9.450E 00	9.709E 02	-2.619E 03	-1.047E 03	-1.572E 03	4.583E 03	1.691E 01	2.492E-02	1.542E 01	2.273E-02
6.760E 01	7.365E 00	8.422E 00	1.157E 03	-2.647E 03	-1.059E 03	-1.588E 03	4.665E 03	1.202E 01	1.771E-02	1.374E 01	2.026E-02
6.837E 01	3.920E 00	6.352E 00	1.335E 03	-2.675E 03	-1.070E 03	-1.606E 03	4.760E 03	6.397E 00	9.429E-03	1.037E 01	1.528E-02
6.909E 01	3.398E 00	4.415E 00	1.450E 03	-2.699E 03	-1.078E 03	-1.621E 03	4.848E 03	5.545E 00	8.172E-03	7.205E 00	1.062E-02
6.970E 01	2.955E 00	2.970E 00	1.525E 03	-2.716E 03	-1.084E 03	-1.633E 03	4.922E 03	4.822E 00	7.108E-03	4.847E 00	7.144E-03
7.065E 01	2.036E 00	7.200E-01	1.596E 03	-2.738E 03	-1.091E 03	-1.647E 03	5.036E 03	3.323E 00	4.897E-03	1.175E 00	1.732E-03
7.108E 01	1.620E 00	1.005E 00	1.616E 03	-2.747E 03	-1.094E 03	-1.652E 03	5.088E 03	2.644E 00	3.897E-03	1.640E 00	2.418E-03
7.261E 01	1.042E 00	2.020E 00	1.684E 03	-2.772E 03	-1.103E 03	-1.669E 03	5.273E 03	1.700E 00	2.506E-03	3.297E 00	4.859E-03
7.276E 01	9.850E-01	1.770E 00	1.690E 03	-2.774E 03	-1.104E 03	-1.670E 03	5.290E 03	1.607E 00	2.369E-03	2.889E 00	4.257E-03
7.351E 01	1.115E 00	5.200E-01	1.728E 03	-2.787E 03	-1.108E 03	-1.680E 03	5.374E 03	1.819E 00	2.681E-03	8.486E-01	1.251E-03
7.351E 01	1.115E 00	5.133E-01	1.729E 03	-2.787E 03	-1.108E 03	-1.680E 03	5.375E 03	1.820E 00	2.683E-03	8.377E-01	1.235E-03
7.484E 01	1.345E 00	0.000	1.755E 03	-2.812E 03	-1.113E 03	-1.699E 03	5.427E 03	2.195E 00	3.235E-03	0.000	0.000
7.769E 01	1.970E 00	0.000	1.821E 03	-2.819E 03	-1.120E 03	-1.699E 03	5.525E 03	3.215E 00	4.738E-03	0.000	0.000
8.159E 01	1.190E 00	0.000	1.889E 03	-2.824E 03	-1.125E 03	-1.699E 03	5.630E 03	1.942E 00	2.862E-03	0.000	0.000
8.440E 01	9.600E-01	0.000	1.913E 03	-2.828E 03	-1.129E 03	-1.699E 03	5.684E 03	1.567E 00	2.309E-03	0.000	0.000
8.726E 01	1.615E 00	0.000	1.944E 03	-2.834E 03	-1.135E 03	-1.699E 03	5.707E 03	2.636E 00	3.885E-03	0.000	0.000
8.727E 01	1.616E 00	0.000	1.944E 03	-2.834E 03	-1.135E 03	-1.699E 03	5.707E 03	2.638E 00	3.888E-03	0.000	0.000

READING = 0093 BLOCK = 48 TIME = 142.129 MACH 5.2 PI = 415.749 TI = 2084.7

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.150E 02	1.150E 02	2.231E-03	5.194E-02
4.041E 01	1.652E-01	1.152E 02	2.240E-03	5.363E-02
4.129E 01	1.434E 01	1.295E 02	2.352E-03	5.742E-02
4.135E 01	1.060E 00	1.306E 02	2.360E-03	5.771E-02
4.150E 01	2.427E 00	1.330E 02	2.380E-03	5.838E-02
4.246E 01	1.539E 01	1.484E 02	2.452E-03	6.013E-02
4.407E 01	2.496E 01	1.733E 02	2.491E-03	5.926E-02
4.431E 01	3.608E 00	1.770E 02	2.499E-03	5.935E-02
4.479E 01	7.173E 00	1.841E 02	2.513E-03	5.950E-02
4.480E 01	2.124E-01	1.843E 02	2.513E-03	5.945E-02
4.626E 01	2.161E 01	2.060E 02	2.485E-03	5.506E-02
4.731E 01	1.504E 01	2.210E 02	2.398E-03	4.869E-02
4.731E 01	1.212E-02	2.210E 02	2.399E-03	4.894E-02
4.811E 01	1.091E 01	2.319E 02	2.275E-03	4.201E-02
4.875E 01	8.096E 00	2.400E 02	3.101E-03	5.442E-02
4.876E 01	1.049E-01	2.401E 02	2.782E-03	6.237E-02
4.929E 01	4.946E 00	2.451E 02	2.757E-03	6.138E-02
5.070E 01	1.260E 01	2.577E 02	2.652E-03	5.722E-02
5.280E 01	1.951E 01	2.772E 02	2.727E-03	4.556E-02
5.330E 01	4.823E 00	2.820E 02	2.845E-03	4.131E-02
5.405E 01	7.261E 00	2.893E 02	2.832E-03	3.944E-02
5.481E 01	7.172E 00	2.964E 02	2.843E-03	3.720E-02
5.576E 01	8.797E 00	3.052E 02	2.834E-03	3.429E-02
5.624E 01	2.774E 00	3.080E 02	2.797E-03	3.099E-02
5.629E 01	4.265E-01	3.084E 02	2.940E-03	2.605E-02
5.643E 01	1.123E 00	3.095E 02	2.830E-03	2.667E-02
5.651E 01	6.312E-01	3.102E 02	2.954E-03	2.851E-02
5.679E 01	2.203E 00	3.124E 02	2.937E-03	2.798E-02
5.702E 01	1.821E 00	3.142E 02	2.913E-03	2.651E-02
5.774E 01	6.217E 00	3.204E 02	2.870E-03	2.008E-02
5.876E 01	9.139E 00	3.296E 02	2.856E-03	1.959E-02
6.077E 01	1.662E 01	3.462E 02	2.922E-03	3.037E-02
6.219E 01	1.024E 01	3.564E 02	2.984E-03	3.355E-02
6.465E 01	1.667E 01	3.731E 02	2.982E-03	3.148E-02
6.503E 01	2.423E 00	3.755E 02	3.021E-03	2.974E-02
6.507E 01	2.642E-01	3.758E 02	3.102E-03	3.057E-02
6.527E 01	1.411E 00	3.772E 02	3.094E-03	3.028E-02
6.693E 01	1.167E 01	3.889E 02	2.932E-03	2.084E-02
6.760E 01	4.159E 00	3.930E 02	2.892E-03	1.809E-02
6.837E 01	4.240E 00	3.973E 02	2.819E-03	1.357E-02
6.909E 01	3.351E 00	4.006E 02	2.772E-03	1.119E-02
6.970E 01	2.445E 00	4.031E 02	2.727E-03	9.156E-03
7.065E 01	2.840E 00	4.059E 02	2.602E-03	5.143E-03
7.108E 01	9.886E-01	4.069E 02	2.592E-03	4.950E-03
7.261E 01	3.618E 00	4.105E 02	2.613E-03	5.559E-03
7.276E 01	3.432E-01	4.109E 02	2.594E-03	5.124E-03
7.351E 01	1.387E 00	4.122E 02	2.503E-03	3.404E-03
7.351E 01	2.211E-03	4.122E 02	2.502E-03	3.394E-03
7.484E 01	8.416E-01	4.131E 02	2.581E-03	5.011E-03
7.769E 01	2.095E 00	4.152E 02	2.632E-03	6.676E-03
8.159E 01	2.151E 00	4.173E 02	2.533E-03	4.505E-03
8.440E 01	8.782E-01	4.182E 02	2.486E-03	3.769E-03
8.726E 01	4.042E-01	4.186E 02	2.561E-03	5.651E-03
8.727E 01	0.000	4.186E 02	2.562E-03	5.654E-03

READING = 0093 BLOCK = 46 TIME = 142.129 MACH 5.2 PT = 415.749 TT = 2669.7

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1464.	(LBF)
MEASURED THRUST	1465.	(LBF)
CALCULATED SPECIFIC IMPULSE	3395.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3396.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5066	
MEASURED THRUST COEFFICIENT	0.5067	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	6738.	(LBF)
NET THRUST	1549.	(LBF)
SPECIFIC IMPULSE	3591.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5358	

MOMENTUM AND FORCES

INLET FRICTION DRAG	115.0	(LBF)
INLET MOMENTUM CHANGE	-969.6	(LBF)
COMBUSTOR FRICTION DRAG	260.5	(LBF)
COMBUSTOR STRUT DRAG	9.21	(LBF)
COMBUSTOR MOMENTUM CHANGE	1337.	(LBF)
NOZZLE FRICTION DRAG	43.10	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1097.	(LBF)
NOZZLE PRESSURE INTEGRAL	1140.	(LBF)
EXTERNAL FRICTION DRAG	51.23	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1299.	(LBF)
TOTAL EXTERNAL DRAG	-1351.	(LBF)
TOTAL STRUT DRAG	9.21	(LBF)
CAVITY FORCE	-1206.	(LBF)
CALCULATED LOAD CELL FORCE	-1092.	(LBF)
MEASURED LOAD CELL FORCE	-1092.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-123.7,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2909	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.175	(IN)
NOZZLE SHROUD TRAILING EDGE	73.515	(IN)
NOZZLE PLUG TRAILING EDGE	67.267	(IN)
STRUT LEADING EDGE	56.431	(IN)
STRUT TRAILING EDGE	65.031	(IN)
COMBUSTOR EXIT	65.031	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8650	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2782	
DELTA PT2	0.1429	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4359	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2832	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8968	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9157	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9334	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.9024	
ENTHALPY AT P0 - SUPERSONIC	-22.73	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-8.99	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0126
EQUIVALENCE RATIO	0.288
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.2543
COMBUSTOR EFFECTIVENESS	0.8938
INJECTOR DISCHARGE COEFFICIENTS	0.7024,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9638
NOZZLE COEFFICIENT - CT	0.8958
PROCESS EFFICIENCY	0.9065
KINETIC ENERGY EFFICIENCY	0.9197

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.276	
1C	44.300	
2A	48.751	C
2C	46.250	
3A	54.041	
3B	56.226	
4	44.776	

Reading 93

t = 150.23 sec.

3- 2- 75

READING # 0093 BLOCK # 57 TIME # 150.229 MACH 5.2 PT = 416.999 TT = 2121.2

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	*	A/AC	FOMTP	G	IVAL	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	416.999	2121	410.1(537)	1.3195	29.269	2180											
0.000	0.586	357	-42.8(85)	1.3966	29.266	921	5.170	4761	1.763	0.14797	32.782	0.8650	4960	10.947	151.9		
SPIKE TIP NS		2	0 0														
0.600	21.262	2121	410.1(537)	1.3196	29.269	2181											
0.600	19.257	2071	396.0(523)	1.3213	29.269	2156	0.390	840	1.965	0.14797	32.782	0.8650	5122	1.932	150.3		
WIND TUNNEL		3	0 0														
0.000	416.999	2121	410.1(537)	1.3195	29.269	2180											
0.000	0.616	362	-41.6(86)	1.3987	29.266	928	5.126	4754	1.763	0.15325	33.952	0.8650	5154	11.323	151.6		
SPIKE TIP NS		4	0 0														
0.600	21.262	2121	410.1(537)	1.3196	29.269	2181											
0.600	19.089	2066	394.8(522)	1.3215	29.269	2154	0.407	876	1.965	0.15325	33.952	0.8650	5153	2.086	151.6		
INLET THROAT		5	0 4														
40.400	187.384	2071	396.0(523)	1.3213	29.269	2156											
40.400	20.639	1180	157.7(285)	1.3646	29.268	1654	2.088	3453	1.810	1.14367	33.952	0.1119	4236	63.564	124.7		
INLET UPNNSK		6	0 2														
40.400	187.384	2071	396.0(523)	1.3213	29.269	2156											
40.400	16.570	1147	149.3(277)	1.3667	29.266	1632	2.152	3513	1.810	1.07683	33.952	0.1231	4293	56.787	126.4		
INLET-DNNNSK		7	0 4														
40.400	118.376	2071	396.0(523)	1.3213	29.269	2156											
40.400	97.448	1976	369.5(497)	1.3246	29.269	2108	0.546	1150	1.841	1.07683	33.952	0.1231	4293	19.248	126.4		
COMBUSTOR		0 8	1 4														
40.410	187.223	2070	395.9(523)	1.3213	29.269	2156											
40.410	21.976	1200	162.8(290)	1.3633	29.268	1667	2.049	3416	1.810	1.18436	33.952	0.1119	4234	62.666	124.7		
COMBUSTOR		0 9	2 4														
41.286	156.841	2064	394.1(521)	1.3215	29.269	2152											
41.286	25.565	1305	189.6(317)	1.3567	29.268	1734	1.845	3199	1.821	1.18710	33.952	0.1117	4107	59.013	121.0		
COMBUSTOR		0 10	3 4														
41.351	154.905	2063	393.9(521)	1.3215	29.269	2152											
41.351	25.882	1313	191.7(319)	1.3562	29.268	1739											
							1.829	3181	1.822	1.18780	33.952	0.1116	4097	58.720	120.7		
COMBUSTOR		0 11	4 4														
41.500	150.563	2062	393.5(521)	1.3216	29.269	2151											
41.500	26.618	1332	196.5(324)	1.3551	29.268	1751	1.793	3140	1.824	1.18881	33.952	0.1115	4074	58.010	120.0		
COMBUSTOR		0 12	5 5														
42.460	134.200	2053	391.1(518)	1.3219	29.269	2147											
42.460	29.320	1401	214.5(342)	1.3509	29.268	1793	1.658	2972	1.830	1.17832	33.952	0.1125	3981	54.424	117.3		
COMBUSTOR		0 13	6 4														
44.071	122.792	2037	386.6(514)	1.3225	29.269	2139											
44.071	29.938	1429	222.0(349)	1.3493	29.256	1810	1.586	2870	1.834	1.13874	33.952	0.1164	3921	50.792	115.5		
COMBUSTOR		0 14	7 4														
44.310	121.655	2035	386.0(513)	1.3226	29.269	2138											
44.310	30.115	1433	223.0(350)	1.3491	29.268	1812	1.576	2856	1.835	1.13651	33.952	0.1166	3913	50.435	115.3		
COMBUSTOR		0 15	8 4														
44.786	119.752	2030	384.8(512)	1.3227	29.269	2136											
44.786	30.396	1439	224.6(352)	1.3487	29.268	1816	1.559	2831	1.835	1.13240	33.952	0.1171	3899	49.821	114.8		
COMBUSTOR		0 16	9 4														
44.800	119.668	2030	384.7(512)	1.3227	29.269	2136											
44.800	30.369	1439	224.6(352)	1.3487	29.268	1816	1.559	2831	1.835	1.13154	33.952	0.1171	3899	49.784	114.8		
COMBUSTOR		0 17	10 4														
46.260	117.466	2019	381.5(509)	1.3231	29.269	2130											
46.260	26.995	1394	212.8(340)	1.3513	29.268	1789	1.624	2906	1.835	1.06571	33.952	0.1244	3926	46.126	115.6		
COMBUSTOR		0 18	11 7														
47.310	125.059	2011	379.3(507)	1.3234	29.269	2126											
47.310	22.043	1301	188.5(316)	1.3570	29.268	1732	1.785	3090	1.831	0.99191	33.952	0.1336	4015	47.034	118.3		

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	*/A	*	A/AC	PUPTM	Q	IVAL	PHI	ETAC
COMBUSTOR	0	19	12 7														
47.311	125.014	2011	379.3(507)	1.3234	24.269	2126											
47.311	22.083	1301	186.7(316)	1.3569	24.266	1732	1.765	3089	1.631	0.99263	33.952	0.1335	4015	47.645	118.2		
COMBUSTOR	0	20	13 7														
48.110	132.935	2002	377.0(504)	1.3237	29.269	2122											
48.110	17.898	1200	162.8(290)	1.3633	29.268	1667	1.963	3274	1.624	0.92446	33.952	0.1434	4112	47.032	121.1		
COMBUSTOR	0	21	14 9														
48.751	83.947	2191	403.9(648)	1.3207	25.056	2396											
48.751	49.495	1924	317.6(562)	1.3303	25.056	2254	0.921	2075	2.135	0.86574	34.414	0.1552	4167	27.924	121.7	0.31	0.14
COMBUSTOR	0	22	15 2														
48.761	83.899	2193	403.8(649)	1.3206	25.059	2397											
48.761	49.548	1927	317.9(563)	1.3302	25.059	2255	0.919	2073	2.136	0.86462	34.414	0.1554	4190	27.861	121.8	0.31	0.14
COMBUSTOR	0	23	16 4														
49.291	81.746	2304	400.8(683)	1.3153	25.175	2446											
49.291	52.362	2069	324.0(607)	1.3236	25.175	2325	0.843	1961	2.150	0.80862	34.414	0.1662	4326	24.642	125.7	0.31	0.19
COMBUSTOR	0	24	17 5														
50.701	74.234	2757	392.5(826)	1.2939	25.655	2629											
50.701	39.150	2378	265.4(701)	1.3070	25.655	2454	1.027	2521	2.200	0.68917	34.414	0.1950	4652	27.004	135.2	0.31	0.42
COMBUSTOR	0	25	18 5														
52.801	67.241	3085	380.6(935)	1.2776	25.926	2749											
52.801	27.700	2531	190.2(749)	1.2973	25.927	2509	1.230	3087	2.239	0.56682	34.534	0.2379	5001	27.189	144.8	0.32	0.58
COMBUSTOR	0	26	19 4														
53.301	64.439	3257	378.2(991)	1.2687	26.123	2804											
53.301	40.567	2948	269.1(885)	1.2801	26.125	2680	0.872	2337	2.253	0.54366	34.534	0.2480	5085	19.743	147.2	0.32	0.66
COMBUSTOR	0	27	20 5														
54.041	62.629	3163	381.5(1012)	1.2750	24.636	2853											
54.041	40.951	2883	278.0(911)	1.2852	24.637	2734	0.832	2276	2.350	0.51552	34.713	0.2629	5213	18.234	150.2	0.44	0.49
COMBUSTOR	0	28	21 2														
54.051	62.612	3165	381.5(1012)	1.2749	24.638	2854											
54.051	40.956	2885	278.0(912)	1.2851	24.639	2735	0.832	2276	2.350	0.51513	34.713	0.2631	5215	18.217	150.2	0.44	0.49
COMBUSTOR	0	29	22 4														
54.811	61.322	3331	377.4(1069)	1.2661	24.824	2906											
54.811	41.350	3063	276.6(972)	1.2762	24.827	2798	0.803	2246	2.362	0.48713	34.713	0.2782	5369	17.000	154.7	0.44	0.56
COMBUSTOR	0	30	23 4														
55.760	59.979	3535	372.0(1140)	1.2546	25.063	2966											
55.760	41.757	3282	274.2(1047)	1.2647	25.068	2869	0.771	2212	2.375	0.45666	34.713	0.2968	5561	15.701	160.2	0.44	0.64
COMBUSTOR	0	31	24 4														
56.226	56.059	4093	373.1(1401)	1.2202	24.424	3188											
56.226	41.957	3884	279.1(1320)	1.2298	24.444	3117	0.696	2168	2.509	0.37051	34.893	0.3677	6303	12.465	180.6	0.56	0.74
COMBUSTOR	0	32	25 2														
56.236	56.049	4095	373.0(1402)	1.2200	24.427	3189											
56.236	41.962	3887	279.1(1321)	1.2296	24.447	3118	0.695	2168	2.509	0.37024	34.893	0.3679	6305	12.473	180.7	0.56	0.74
COMBUSTOR	0	33	26 4														
56.291	55.814	4169	372.7(1430)	1.2147	24.513	3205											
56.291	41.318	3953	273.7(1345)	1.2248	24.538	3132	0.710	2225	2.512	0.36927	34.893	0.3689	6317	12.769	181.0	0.56	0.77
COMBUSTOR	0	34	27 3														
56.431	55.693	4196	371.9(1459)	1.2127	24.546	3210											
56.431	41.348	3982	273.4(1355)	1.2227	24.572	3139	0.707	2220	2.513	0.36655	34.893	0.3717	6344	12.647	181.8	0.56	0.78
COMBUSTOR	0	35	28 21														
56.511	54.984	4717	371.4(1633)	1.1743	25.179	3307											
56.511	42.080	4542	273.8(1563)	1.1809	25.244	3250	0.680	2210	2.527	0.37065	34.893	0.3675	6358	12.732	182.2	0.56	1.00
COMBUSTOR	0	36	29 21														
56.791	55.439	4715	369.8(1632)	1.1745	25.181	3307											
56.791	42.200	4537	270.3(1560)	1.1812	25.247	3249	0.687	2231	2.526	0.36943	34.893	0.3688	6405	12.808	183.6	0.56	1.00
COMBUSTOR	0	37	30 21														
57.017	55.600	4714	368.5(1631)	1.1747	25.183	3306											
57.017	42.295	4532	267.6(1558)	1.1816	25.249	3247	0.692	2247	2.525	0.36873	34.893	0.3695	6440	12.878	184.6	0.56	1.00

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                P     T      H           GAMMA  MOLWT SONV  MACH  VEL    S      W/A      W      A/AC     PUMIP   Q     IVAC  PHI  ETAC
COMBUSTOR       0   38   31  21
57.741     56.245 4708   364.4(1629) 1.1751 25.187 3304
57.741     42.600 4525   263.4(1556) 1.1821 25.252 3245 0.693 2249 2.524 0.36501 34.893 0.3753   6533 12.666 187.2 0.56 1.00
COMBUSTOR       0   39   32  21
58.761     56.837 4699   358.9(1626) 1.1757 25.192 3302
58.761     42.450 4508   252.1(1549) 1.1831 25.260 3240 0.710 2301 2.522 0.36070 34.893 0.3777   6602 12.899 189.2 0.56 1.00
COMBUSTOR       0   40   33 200
60.771     58.215 4684   348.8(1620) 1.1769 25.203 3298
60.771     38.812 4416   203.6(1512) 1.1876 25.291 3211 0.839 2695 2.518 0.37325 34.893 0.3650   6551 15.634 187.6 0.56 1.00
COMBUSTOR       0   41   34 200
62.191     59.373 4674   341.9(1615) 1.1777 25.210 3295
62.191     35.962 4341   164.1(1482) 1.1915 25.313 3187 0.936 2982 2.515 0.38337 34.893 0.3553   6507 17.769 186.5 0.56 1.00
SONIC THROAT       42   35 200
62.191     63.951 4679   341.9(1617) 1.1784 25.215 3297
62.191     35.962 4294   138.9(1463) 1.1945 25.328 3173 1.005 3187 2.509 0.38337 34.893 0.3553   6730 16.990 192.9 0.56 1.00
COMBUSTOR  REGEN   43   36   6
62.191     59.373 4770   401.8(1654) 1.1724 25.157 3324
62.191     41.490 4536   270.3(1560) 1.1811 25.246 3248 0.790 2565 2.528 0.38337 34.893 0.3553   6558 15.283 188.0 0.56 1.00
NOZZLE  AE         44   37   4
87.267     59.373 4674   341.9(1594) 1.1777 25.210 3295
87.267      1.390 2318  -671.0( 719) 1.2830 25.453 2410 2.954 7119 2.515 0.07032 34.893 1.9372   8411  7.780 241.0 0.56 1.00
NOZZLE  PO         45   38   4
87.267     59.373 4674   341.9(1594) 1.1777 25.210 3295
87.267      0.616 1930  -805.6( 585) 1.2991 25.453 2213 3.424 7577 2.515 0.03986 34.893 3.4177   8757  4.694 251.0 0.56 1.00
NOZZLE  AE REGEN   46   39   4
87.267     59.373 4770   401.8(1654) 1.1724 25.157 3324
87.267      1.433 2418  -635.4( 754) 1.2791 25.453 2458 2.931 7204 2.528 0.07032 34.893 1.9372   8524  7.873 244.3 0.56 1.00
NOZZLE  PO REGEN   47   40   4
87.267     59.373 4770   401.8(1654) 1.1724 25.157 3324
87.267      0.616 2003  -760.7( 610) 1.2959 25.453 2252 3.416 7692 2.528 0.03899 34.893 3.4944   8894  4.660 254.9 0.56 1.00
FICTIVE COMBUSTR   69   62   0
62.191    187.384 4732   341.9(1638) 1.1885 25.276 3326
62.191      0.616 1466  -958.4( 432) 1.3234 25.453 1947 4.144 8066 2.424 0.05586 34.893 2.4388   9133  7.002 261.7 0.56 1.00
FICTIVE NOZZLE     70   63   0
87.267     34.612 4578   301.6(1577) 1.1761 25.209 3259
87.267      1.763 2680  -540.2( 848) 1.2691 25.452 2577 2.518 6490 2.549 0.07033 34.893 1.9371   7914  7.093 226.8 0.56 1.00
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READING = 0093 BLOCK = 57 TIME = 150.229 MACH 5.2 PI = 416.999 TI = 2121.2

XABB	P-IB	P-OB	PBA	QBA	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PIO
6.981E-01	1.400E 00	0.000	-5.213E-01	0.000	0.000	0.000	2.470E-02	2.272E 00	3.357E-03	0.000	0.000
1.836E 01	1.400E 00	0.000	-4.655E 01	0.000	0.000	0.000	1.034E 02	2.272E 00	3.357E-03	0.000	0.000
3.070E 01	2.565E 00	0.000	-2.073E 02	0.000	0.000	0.000	5.053E 02	4.162E 00	6.151E-03	0.000	0.000
3.508E 01	4.236E 00	0.000	-4.276E 02	0.000	0.000	0.000	6.804E 02	6.873E 00	1.016E-02	0.000	0.000
3.517E 01	4.272E 00	6.049E 00	-4.943E 02	0.000	0.000	0.000	6.843E 02	6.933E 00	1.025E-02	9.616E 00	1.451E-02
3.517E 01	4.275E 00	6.026E 00	-4.943E 02	0.000	0.000	0.000	6.846E 02	6.937E 00	1.025E-02	9.778E 00	1.445E-02
3.555E 01	4.430E 00	4.575E 00	-5.029E 02	0.000	0.000	0.000	7.222E 02	7.189E 00	1.062E-02	7.424E 00	1.097E-02
3.584E 01	4.413E 00	3.450E 00	-5.156E 02	-2.560E 02	-2.560E 02	0.000	7.518E 02	7.161E 00	1.058E-02	5.596E 00	8.273E-03
3.606E 01	4.400E 00	4.644E 00	-5.254E 02	-2.612E 02	-2.612E 02	0.000	7.743E 02	7.140E 00	1.055E-02	7.860E 00	1.162E-02
3.648E 01	4.797E 00	7.515E 00	-5.390E 02	-2.676E 02	-2.676E 02	0.000	8.178E 02	7.785E 00	1.150E-02	1.220E 01	1.802E-02
3.701E 01	4.575E 00	1.089E 01	-5.540E 02	-3.036E 02	-2.761E 02	-2.750E 01	8.738E 02	7.424E 00	1.097E-02	1.767E 01	2.611E-02
3.730E 01	5.916E 00	1.474E 01	-5.617E 02	-3.169E 02	-2.810E 02	-3.591E 01	9.051E 02	9.600E 00	1.419E-02	2.067E 01	3.055E-02
3.803E 01	9.277E 00	1.532E 01	-6.161E 02	-3.504E 02	-2.938E 02	-5.656E 01	9.848E 02	1.505E 01	2.225E-02	2.486E 01	3.674E-02
3.832E 01	1.233E 01	1.635E 01	-6.435E 02	-3.642E 02	-2.995E 02	-6.474E 01	1.017E 03	2.002E 01	2.958E-02	2.653E 01	3.921E-02
3.875E 01	1.684E 01	1.644E 01	-6.936E 02	-3.856E 02	-3.089E 02	-7.673E 01	1.066E 03	2.733E 01	4.039E-02	2.668E 01	3.943E-02
3.879E 01	1.727E 01	1.645E 01	-6.964E 02	-3.877E 02	-3.099E 02	-7.787E 01	1.070E 03	2.803E 01	4.142E-02	2.669E 01	3.945E-02
3.901E 01	1.957E 01	1.721E 01	-7.214E 02	-3.992E 02	-3.153E 02	-8.396E 01	1.095E 03	3.177E 01	4.694E-02	2.792E 01	4.126E-02
3.930E 01	1.900E 01	1.821E 01	-7.466E 02	-4.151E 02	-3.231E 02	-9.201E 01	1.129E 03	3.083E 01	4.555E-02	2.955E 01	4.368E-02
3.950E 01	1.860E 01	1.297E 01	-7.603E 02	-4.263E 02	-3.288E 02	-9.747E 01	1.152E 03	3.018E 01	4.460E-02	2.104E 01	3.109E-02
3.979E 01	1.975E 01	5.300E 00	-7.862E 02	-4.433E 02	-3.379E 02	-1.053E 02	1.186E 03	3.205E 01	4.736E-02	8.600E 00	1.271E-02
4.000E 01	2.057E 01	5.250E 00	-8.098E 02	-4.559E 02	-3.450E 02	-1.109E 02	1.210E 03	3.339E 01	4.934E-02	8.519E 00	1.259E-02
4.040E 01	2.372E 01	5.153E 00	-8.557E 02	-4.809E 02	-3.595E 02	-1.214E 02	1.257E 03	3.849E 01	5.688E-02	8.362E 00	1.236E-02
4.041E 01	2.380E 01	5.151E 00	-8.568E 02	-4.815E 02	-3.598E 02	-1.217E 02	1.258E 03	3.862E 01	5.707E-02	8.358E 00	1.235E-02
4.129E 01	3.068E 01	4.939E 00	-9.699E 02	-5.454E 02	-3.956E 02	-1.498E 02	1.362E 03	4.979E 01	7.357E-02	8.015E 00	1.184E-02
4.135E 01	3.119E 01	4.923E 00	-9.769E 02	-5.507E 02	-3.985E 02	-1.522E 02	1.370E 03	5.061E 01	7.480E-02	7.989E 00	1.181E-02
4.150E 01	3.236E 01	5.663E 00	-9.995E 02	-5.632E 02	-4.053E 02	-1.579E 02	1.387E 03	5.252E 01	7.761E-02	9.190E 00	1.358E-02
4.246E 01	1.939E 01	1.043E 01	-1.077E 03	-6.466E 02	-4.518E 02	-1.968E 02	1.502E 03	3.146E 01	4.649E-02	1.692E 01	2.501E-02
4.407E 01	2.520E 01	1.842E 01	-1.111E 03	-7.941E 02	-5.304E 02	-2.687E 02	1.697E 03	4.089E 01	6.042E-02	2.989E 01	4.418E-02
4.431E 01	2.606E 01	2.015E 01	-1.116E 03	-8.210E 02	-5.416E 02	-2.794E 02	1.726E 03	4.229E 01	6.249E-02	3.270E 01	4.832E-02
4.479E 01	2.777E 01	2.359E 01	-1.123E 03	-8.612E 02	-5.635E 02	-2.978E 02	1.784E 03	4.507E 01	6.660E-02	3.826E 01	5.658E-02
4.480E 01	2.782E 01	2.369E 01	-1.123E 03	-8.624E 02	-5.641E 02	-2.982E 02	1.786E 03	4.515E 01	6.673E-02	3.845E 01	5.682E-02
4.626E 01	3.190E 01	3.425E 01	-1.073E 03	-9.714E 02	-6.321E 02	-3.393E 02	1.966E 03	5.190E 01	7.669E-02	5.558E 01	8.214E-02
4.731E 01	3.497E 01	4.184E 01	-9.691E 02	-1.045E 03	-6.831E 02	-3.623E 02	2.096E 03	5.675E 01	8.386E-02	6.790E 01	1.003E-01
4.731E 01	3.499E 01	4.185E 01	-9.699E 02	-1.046E 03	-6.832E 02	-3.624E 02	2.096E 03	5.678E 01	8.391E-02	6.791E 01	1.004E-01
4.811E 01	5.595E 01	4.609E 01	-8.617E 02	-1.126E 03	-7.233E 02	-4.024E 02	2.195E 03	9.079E 01	1.342E-01	7.480E 01	1.105E-01
4.875E 01	4.950E 01	4.950E 01	-7.195E 02	-1.224E 03	-7.563E 02	-4.676E 02	2.276E 03	8.032E 01	1.187E-01	8.032E 01	1.187E-01
4.876E 01	4.955E 01	4.955E 01	-7.169E 02	-1.226E 03	-7.568E 02	-4.688E 02	2.277E 03	8.040E 01	1.188E-01	8.040E 01	1.188E-01
4.929E 01	5.236E 01	5.236E 01	-5.761E 02	-1.331E 03	-7.846E 02	-5.459E 02	2.343E 03	8.497E 01	1.256E-01	8.497E 01	1.256E-01
5.070E 01	3.915E 01	3.915E 01	-2.378E 02	-1.616E 03	-8.610E 02	-7.554E 02	2.521E 03	6.353E 01	9.389E-02	6.353E 01	9.389E-02
5.280E 01	2.770E 01	2.770E 01	1.302E 02	-1.901E 03	-9.014E 02	-1.000E 03	2.787E 03	4.495E 01	6.643E-02	4.495E 01	6.643E-02
5.330E 01	4.057E 01	4.057E 01	2.189E 02	-2.063E 03	-1.011E 03	-1.052E 03	2.851E 03	6.583E 01	9.728E-02	6.583E 01	9.728E-02
5.404E 01	4.095E 01	4.095E 01	3.746E 02	-2.190E 03	-1.056E 03	-1.134E 03	2.945E 03	6.645E 01	9.820E-02	6.645E 01	9.820E-02
5.405E 01	4.096E 01	4.096E 01	3.767E 02	-2.192E 03	-1.057E 03	-1.135E 03	2.947E 03	6.646E 01	9.822E-02	6.646E 01	9.822E-02
5.481E 01	4.135E 01	4.135E 01	5.362E 02	-2.333E 03	-1.104E 03	-1.229E 03	3.044E 03	6.710E 01	9.916E-02	6.710E 01	9.916E-02
5.576E 01	4.176E 01	4.176E 01	7.339E 02	-2.522E 03	-1.164E 03	-1.357E 03	3.166E 03	6.776E 01	1.001E-01	6.776E 01	1.001E-01
5.623E 01	4.196E 01	4.196E 01	1.477E 03	-2.617E 03	-1.191E 03	-1.426E 03	3.208E 03	6.809E 01	1.006E-01	6.809E 01	1.006E-01
5.624E 01	4.196E 01	4.196E 01	1.480E 03	-2.619E 03	-1.192E 03	-1.427E 03	3.209E 03	6.809E 01	1.006E-01	6.809E 01	1.006E-01
5.629E 01	4.065E 01	4.199E 01	1.492E 03	-2.630E 03	-1.195E 03	-1.435E 03	3.217E 03	6.596E 01	9.748E-02	6.813E 01	1.007E-01
5.643E 01	4.065E 01	4.205E 01	1.519E 03	-2.656E 03	-1.202E 03	-1.456E 03	3.234E 03	6.596E 01	9.748E-02	6.823E 01	1.008E-01
5.651E 01	4.208E 01	4.208E 01	1.536E 03	-2.674E 03	-1.206E 03	-1.468E 03	3.245E 03	6.828E 01	1.009E-01	6.828E 01	1.009E-01
5.679E 01	4.220E 01	4.220E 01	1.591E 03	-2.730E 03	-1.220E 03	-1.510E 03	3.280E 03	6.848E 01	1.012E-01	6.846E 01	1.012E-01
5.702E 01	4.230E 01	4.230E 01	1.632E 03	-2.775E 03	-1.232E 03	-1.543E 03	3.309E 03	6.863E 01	1.014E-01	6.863E 01	1.014E-01
5.774E 01	4.260E 01	4.260E 01	1.748E 03	-2.918E 03	-1.270E 03	-1.648E 03	3.402E 03	6.913E 01	1.022E-01	6.913E 01	1.022E-01
5.876E 01	4.245E 01	4.245E 01	1.846E 03	-3.109E 03	-1.325E 03	-1.784E 03	3.532E 03	6.889E 01	1.018E-01	6.889E 01	1.018E-01
6.077E 01	3.881E 01	3.881E 01	1.855E 03	-3.403E 03	-1.440E 03	-2.023E 03	3.790E 03	6.298E 01	9.308E-02	6.298E 01	9.308E-02
6.219E 01	3.596E 01	3.596E 01	1.855E 03	-3.704E 03	-1.532E 03	-2.173E 03	3.972E 03	5.836E 01	8.624E-02	5.836E 01	8.624E-02

READING = 0095 BLOCK = 57 TIME = 150.229 MACH 5.2 PI = 416.999 TI = 2121.2

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSU	P-IB/PIO	P-OB/PSU	P-OB/PIO
6.465E 01	2.744E 01	2.744E 01	1.855E 03	-4.133E 03	-1.722E 03	-2.411E 03	4.289E 03	4.453E 01	6.581E-02	4.453E 01	6.581E-02
6.503E 01	2.520E 01	2.614E 01	1.855E 03	-4.201E 03	-1.755E 03	-2.446E 03	4.337E 03	4.089E 01	6.043E-02	4.242E 01	6.269E-02
6.507E 01	2.520E 01	2.600E 01	1.855E 03	-4.209E 03	-1.759E 03	-2.450E 03	4.342E 03	4.089E 01	6.043E-02	4.220E 01	6.236E-02
6.527E 01	2.380E 01	2.531E 01	1.855E 03	-4.243E 03	-1.776E 03	-2.467E 03	4.368E 03	3.862E 01	5.708E-02	4.108E 01	6.070E-02
6.693E 01	1.219E 01	1.055E 01	2.055E 03	-4.480E 03	-1.896E 03	-2.585E 03	4.583E 03	1.978E 01	2.923E-02	1.712E 01	2.530E-02
6.760E 01	9.318E 00	1.045E 01	2.270E 03	-4.553E 03	-1.932E 03	-2.621E 03	4.665E 03	1.512E 01	2.234E-02	1.695E 01	2.505E-02
6.837E 01	6.020E 00	8.519E 00	2.506E 03	-4.628E 03	-1.967E 03	-2.662E 03	4.760E 03	9.769E 00	1.444E-02	1.382E 01	2.043E-02
6.909E 01	5.008E 00	6.715E 00	2.674E 03	-4.691E 03	-1.994E 03	-2.698E 03	4.848E 03	8.126E 00	1.201E-02	1.090E 01	1.610E-02
6.970E 01	4.150E 00	4.402E 00	2.783E 03	-4.740E 03	-2.014E 03	-2.727E 03	4.922E 03	6.734E 00	9.952E-03	7.143E 00	1.056E-02
7.065E 01	3.148E 00	8.000E-01	2.887E 03	-4.806E 03	-2.041E 03	-2.765E 03	5.036E 03	5.109E 00	7.550E-03	1.298E 00	1.918E-03
7.108E 01	2.695E 00	1.234E 00	2.917E 03	-4.832E 03	-2.052E 03	-2.779E 03	5.088E 03	4.373E 00	6.463E-03	2.003E 00	2.960E-03
7.261E 01	1.670E 00	2.780E 00	3.018E 03	-4.909E 03	-2.086E 03	-2.823E 03	5.273E 03	2.711E 00	4.006E-03	4.511E 00	6.667E-03
7.276E 01	1.570E 00	2.435E 00	3.027E 03	-4.915E 03	-2.089E 03	-2.827E 03	5.290E 03	2.548E 00	3.765E-03	3.951E 00	5.839E-03
7.351E 01	1.977E 00	7.100E-01	3.083E 03	-4.950E 03	-2.102E 03	-2.848E 03	5.374E 03	3.209E 00	4.742E-03	1.152E 00	1.703E-03
7.351E 01	1.980E 00	7.008E-01	3.084E 03	-4.950E 03	-2.102E 03	-2.849E 03	5.375E 03	3.212E 00	4.747E-03	1.137E 00	1.681E-03
7.484E 01	2.700E 00	0.000	3.134E 03	-5.015E 03	-2.121E 03	-2.894E 03	5.427E 03	4.381E 00	6.475E-03	0.000	0.000
7.769E 01	2.410E 00	0.000	3.236E 03	-5.044E 03	-2.150E 03	-2.894E 03	5.525E 03	3.911E 00	5.779E-03	0.000	0.000
8.159E 01	1.660E 00	0.000	3.323E 03	-5.067E 03	-2.173E 03	-2.894E 03	5.630E 03	2.694E 00	3.981E-03	0.000	0.000
8.440E 01	1.800E 00	0.000	3.361E 03	-5.083E 03	-2.189E 03	-2.894E 03	5.684E 03	2.921E 00	4.317E-03	0.000	0.000
8.726E 01	2.425E 00	0.000	3.412E 03	-5.110E 03	-2.217E 03	-2.894E 03	5.707E 03	3.935E 00	5.815E-03	0.000	0.000
8.727E 01	2.426E 00	0.000	3.412E 03	-5.110E 03	-2.217E 03	-2.894E 03	5.707E 03	3.937E 00	5.819E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.156E 02	1.156E 02	2.214E-03	5.092E-02
4.041E 01	1.657E-01	1.158E 02	2.224E-03	5.306E-02
4.129E 01	1.439E 01	1.302E 02	2.336E-03	5.663E-02
4.135E 01	1.066E 00	1.312E 02	2.345E-03	5.693E-02
4.150E 01	2.441E 00	1.337E 02	2.365E-03	5.759E-02
4.246E 01	1.550E 01	1.492E 02	2.436E-03	5.931E-02
4.407E 01	2.518E 01	1.744E 02	2.474E-03	5.841E-02
4.431E 01	3.643E 00	1.780E 02	2.481E-03	5.850E-02
4.479E 01	7.243E 00	1.853E 02	2.495E-03	5.864E-02
4.480E 01	2.145E-01	1.855E 02	2.495E-03	5.860E-02
4.626E 01	2.179E 01	2.073E 02	2.467E-03	5.425E-02
4.731E 01	1.510E 01	2.224E 02	2.379E-03	4.816E-02
4.731E 01	1.214E-02	2.224E 02	2.379E-03	4.821E-02
4.811E 01	1.091E 01	2.333E 02	2.250E-03	4.201E-02
4.875E 01	8.111E 00	2.414E 02	3.147E-03	5.412E-02
4.876E 01	1.034E-01	2.418E 02	2.779E-03	6.327E-02
4.929E 01	4.827E 00	2.463E 02	2.753E-03	6.213E-02
5.070E 01	1.234E 01	2.587E 02	2.631E-03	5.847E-02
5.280E 01	1.928E 01	2.779E 02	2.712E-03	4.644E-02
5.330E 01	4.258E 00	2.822E 02	2.903E-03	4.656E-02
5.404E 01	5.507E 00	2.877E 02	3.153E-03	4.324E-02
5.405E 01	7.212E-02	2.878E 02	3.035E-03	4.546E-02
5.481E 01	5.183E 00	2.930E 02	3.010E-03	4.495E-02
5.576E 01	6.036E 00	2.990E 02	3.042E-03	4.315E-02
5.623E 01	1.825E 00	3.008E 02	3.114E-03	3.931E-02
5.624E 01	5.041E-02	3.009E 02	3.218E-03	3.756E-02
5.629E 01	2.856E-01	3.012E 02	3.206E-03	3.790E-02
5.643E 01	7.282E-01	3.019E 02	3.225E-03	3.749E-02
5.651E 01	4.279E-01	3.023E 02	3.365E-03	3.596E-02
5.679E 01	1.530E 00	3.038E 02	3.351E-03	3.568E-02
5.702E 01	1.239E 00	3.051E 02	3.341E-03	3.614E-02
5.774E 01	3.945E 00	3.090E 02	3.323E-03	3.626E-02
5.876E 01	5.541E 00	3.146E 02	3.303E-03	3.667E-02
6.077E 01	1.202E 01	3.266E 02	3.230E-03	3.932E-02
6.219E 01	9.763E 00	3.363E 02	3.187E-03	4.037E-02
6.465E 01	2.035E 01	3.783E 02	3.200E-03	3.953E-02
6.503E 01	3.512E 00	3.818E 02	3.186E-03	3.865E-02
6.507E 01	3.773E-01	3.822E 02	3.186E-03	3.861E-02
6.527E 01	1.894E 00	3.841E 02	3.180E-03	3.804E-02
6.693E 01	1.521E 01	3.993E 02	3.069E-03	2.534E-02
6.760E 01	5.333E 00	4.047E 02	3.051E-03	2.316E-02
6.837E 01	5.665E 00	4.103E 02	3.012E-03	1.809E-02
6.909E 01	4.675E 00	4.150E 02	2.982E-03	1.626E-02
6.970E 01	3.449E 00	4.184E 02	2.940E-03	1.296E-02
7.065E 01	3.988E 00	4.224E 02	2.840E-03	7.259E-03
7.108E 01	1.411E 00	4.238E 02	2.838E-03	7.228E-03
7.261E 01	5.186E 00	4.290E 02	2.851E-03	7.937E-03
7.276E 01	4.877E-01	4.295E 02	2.837E-03	7.320E-03
7.351E 01	2.050E 00	4.316E 02	2.760E-03	5.365E-03
7.351E 01	3.431E-03	4.316E 02	2.760E-03	5.354E-03
7.484E 01	1.394E 00	4.330E 02	2.867E-03	9.156E-03
7.769E 01	3.102E 00	4.361E 02	2.840E-03	6.304E-03
8.159E 01	2.854E 00	4.389E 02	2.775E-03	6.241E-03
8.440E 01	1.341E 00	4.403E 02	2.773E-03	6.614E-03
8.726E 01	6.268E-01	4.409E 02	2.801E-03	6.278E-03
8.727E 01	0.000	4.409E 02	2.802E-03	6.281E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2707.	(LBF)
MEASURED THRUST	2756.	(LBF)
CALCULATED SPECIFIC IMPULSE	3234.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3293.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.9533	
MEASURED THRUST COEFFICIENT	0.9502	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	8020.	(LBF)
NET THRUST	2813.	(LBF)
SPECIFIC IMPULSE	3362.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.9700	

MOMENTUM AND FORCES

INLET FRICTION DRAG	115.6	(LBF)
INLET MOMENTUM CHANGE	-971.4	(LBF)
COMBUSTOR FRICTION DRAG	220.7	(LBF)
COMBUSTOR STRUT DRAG	137.86	(LBF)
COMBUSTOR MOMENTUM CHANGE	2272.	(LBF)
NOZZLE FRICTION DRAG	82.91	(LBF)
NOZZLE STRUT DRAG	67.97	(LBF)
NOZZLE MOMENTUM CHANGE	1406.	(LBF)
NOZZLE PRESSURE INTEGRAL	1557.	(LBF)
EXTERNAL FRICTION DRAG	50.78	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1319.	(LBF)
TOTAL EXTERNAL DRAG	-1370.	(LBF)
TOTAL STRUT DRAG	205.83	(LBF)
CAVITY FORCE	-1209.	(LBF)
CALCULATED LOAD CELL FORCE	128.	(LBF)
MEASURED LOAD CELL FORCE	177.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-126.6, -123.4,	0.0,

STATIONS

NOMINAL COWL LEADING EDGE	34.864	(IN)
SPIKE TRANSLATION	0.2909	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.175	(IN)
NOZZLE SHROUD TRAILING EDGE	73.515	(IN)
NOZZLE PLUG TRAILING EDGE	87.267	(IN)
STRUT LEADING EDGE	56.431	(IN)
STRUT TRAILING EDGE	65.031	(IN)
COMBUSTOR EXIT	62.191	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8650	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2789	
DELTA PT2	0.1410	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4494	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2839	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9043	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9178	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9264	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8938	
ENTHALPY AT PO - SUPERSONIC	-22.51	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-7.78	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0246
EQUIVALENCE RATIO	0.563
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.3169
COMBUSTOR EFFECTIVENESS	0.9231
INJECTOR DISCHARGE COEFFICIENTS	0.7574, 0.7258, 0.5650,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9409
NOZZLE COEFFICIENT - CT	0.8687
PROCESS EFFICIENCY	0.8905
KINETIC ENERGY EFFICIENCY	0.8690

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.276	
1C	44.300	
2A	48.751	C
2C	46.250	
3A	54.041	E
3B	56.226	F
4	44.776	

Reading 93

t = 158.33 sec.

READING = 0093 BLOCK = 66 TIME = 158.329 MACH 5.2 PT = 416.749 TT = 2119.8

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	416.749	2120	409.7(537)	1.3196	29.269	2180											
0.000	0.585	357	-42.9(85)	1.3986	29.268	920	5.170	4759	1.762	0.14796	32.780	0.8650	4978	10.942	151.9		
SPIKE TIP NS		2	0 6														
0.600	21.287	2120	409.7(537)	1.3196	29.269	2180											
0.608	19.286	2070	395.7(523)	1.3214	29.269	2155	0.389	838	1.964	0.14796	32.780	0.8650	5127	1.928	156.4		
WIND TUNNEL		3	0 0														
0.000	416.749	2120	409.7(537)	1.3196	29.269	2180											
0.000	0.617	362	-41.6(86)	1.3987	29.268	928	5.124	4752	1.762	0.15349	34.007	0.8650	5160	11.336	151.7		
SPIKE TIP NS		4	0 0														
0.600	21.287	2120	409.7(537)	1.3196	29.269	2180											
0.600	19.111	2065	394.4(522)	1.3215	29.269	2153											
							0.407	876	1.964	0.15349	34.007	0.8650	5160	2.089	151.7		
INLET THROAT		5	0 4														
40.400	188.838	2067	394.9(522)	1.3214	29.269	2154											
40.400	20.475	1173	155.8(283)	1.3650	29.268	1649	2.097	3459	1.809	1.14360	34.007	0.1119	4243	63.771	124.8		
INLET UPNRSK		6	0 2														
40.408	188.838	2067	394.9(522)	1.3214	29.269	2154											
40.408	18.482	1141	147.8(275)	1.3671	29.268	1628	2.160	3516	1.809	1.07854	34.007	0.1231	4299	58.939	126.4		
INLET DNNRSK		7	0 6														
40.400	118.608	2067	394.9(522)	1.3214	29.269	2154											
40.400	97.911	1972	368.6(496)	1.3248	29.269	2107	0.544	1147	1.841	1.07854	34.007	0.1231	4299	19.225	126.4		
COMBUSTOR	0	8	1 4														
40.410	188.693	2067	394.9(522)	1.3214	29.269	2154											
40.410	21.861	1194	161.1(289)	1.3637	29.268	1663	2.057	3420	1.809	1.18625	34.007	0.1119	4242	63.048	124.7		
COMBUSTOR	0	9	2 4														
41.286	158.035	2059	392.7(520)	1.3217	29.269	2150											
41.286	25.401	1297	187.5(315)	1.3572	29.268	1729	1.853	3205	1.820	1.18900	34.007	0.1117	4114	59.213	121.0		
COMBUSTOR	0	10	3 4														
41.351	156.080	2058	392.5(520)	1.3217	29.269	2150											
41.351	25.714	1305	189.6(317)	1.3567	29.268	1734	1.838	3187	1.821	1.18969	34.007	0.1116	4104	58.922	120.7		
COMBUSTOR	0	11	4 4														
41.500	151.694	2057	392.1(519)	1.3218	29.269	2149											
41.500	26.437	1323	194.3(322)	1.3556	29.268	1745	1.802	3146	1.823	1.19071	34.007	0.1115	4080	58.217	120.0		
COMBUSTOR	0	12	5 5														
42.460	135.225	2046	389.2(517)	1.3221	29.269	2144											
42.460	29.063	1390	211.7(339)	1.3516	29.268	1786	1.668	2980	1.829	1.18020	34.007	0.1125	3987	54.661	117.3		
COMBUSTOR	0	13	6 4														
44.071	123.997	2028	384.1(511)	1.3228	29.269	2135											
44.071	29.524	1414	217.9(345)	1.3502	29.268	1801	1.601	2883	1.832	1.14056	34.007	0.1164	3928	51.107	115.5		
COMBUSTOR	0	14	7 4														
44.318	122.797	2025	383.3(511)	1.3229	29.269	2133											
44.318	29.699	1417	218.9(346)	1.3500	29.268	1803	1.591	2868	1.833	1.13832	34.007	0.1166	3919	50.740	115.2		
COMBUSTOR	0	15	8 4														
44.786	120.187	2020	382.0(509)	1.3231	29.269	2131											
44.786	30.184	1428	221.6(349)	1.3494	29.268	1809	1.566	2833	1.833	1.13420	34.007	0.1171	3899	49.929	114.7		
COMBUSTOR	0	16	9 4														
44.800	120.039	2020	381.9(509)	1.3231	29.269	2131											
44.800	30.168	1428	221.6(349)	1.3494	29.268	1809	1.566	2832	1.833	1.13335	34.007	0.1171	3899	49.883	114.6		
COMBUSTOR	0	17	10 4														
46.260	113.102	2008	378.6(506)	1.3235	29.269	2125											
46.260	28.189	1416	218.5(346)	1.3501	29.268	1802	1.571	2831	1.836	1.06741	34.007	0.1244	3890	46.956	114.4		
COMBUSTOR	0	18	11 4														
47.310	110.985	2001	376.6(504)	1.3237	29.269	2121											
47.310	24.515	1367	205.6(533)	1.3630	29.268	1772											
							1.650	2924	1.836	0.99349	34.007	0.1336	3930	45.149	115.6		

READING = 0093 BLOCK = 66 TIME = 158.329 MACH 5.2 PT = 416.749 TT = 2119.8

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTH	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.311	111.011	2001	376.5(504)	1.3237	29.269	2121											
47.311	24.547	1367	205.7(333)	1.3529	29.268	1773	1.649	2923	1.836	0.99421	34.007	0.1335	3930	45.169	115.6		
COMBUSTOR	0	20	13 4														
48.110	111.582	1995	374.9(502)	1.3240	29.269	2118											
48.110	20.999	1307	190.0(318)	1.3866	29.268	1735	1.753	3042	1.835	0.92594	34.007	0.1434	3986	43.768	117.2		
COMBUSTOR	0	21	14 4														
48.761	112.709	1990	373.6(501)	1.3241	29.269	2116											
48.761	17.719	1243	173.6(301)	1.3606	29.268	1695	1.867	3164	1.834	0.85437	34.007	0.1554	4049	42.004	119.1		
COMBUSTOR	0	22	15 8														
49.291	115.009	1986	372.8(500)	1.3243	29.269	2114											
49.291	15.327	1187	159.3(287)	1.3642	29.268	1658	1.970	3266	1.832	0.79903	34.007	0.1662	4105	40.559	120.7		
COMBUSTOR	0	23	16 11														
50.701	140.135	1974	369.2(497)	1.3247	29.269	2108											
50.701	9.942	994	110.9(238)	1.3765	29.268	1525	2.358	3595	1.817	0.68100	34.007	0.1950	4296	38.045	126.3		
COMBUSTOR	0	24	17 202														
52.801	76.683	2034	362.3(515)	1.3218	29.188	2140											
52.801	44.700	1761	292.3(445)	1.3312	29.188	2009	0.931	1872	1.873	0.56013	34.126	0.2379	4709	16.295	138.0	0.01	1.00
COMBUSTOR	0	25	18 200														
53.301	73.989	2029	361.0(514)	1.3220	29.188	2138											
53.301	47.567	1820	303.1(456)	1.3296	29.187	2030	0.838	1702	1.875	0.53723	34.126	0.2480	4826	14.206	141.4	0.01	1.00
COMBUSTOR	0	26	19 4														
54.041	61.959	2650	384.2(789)	1.2984	25.666	2582											
54.041	47.656	2494	331.9(737)	1.3039	25.666	2510	0.644	1617	2.198	0.51328	34.563	0.2629	4946	12.899	143.1	0.30	0.38
COMBUSTOR	0	27	20 2														
54.051	61.948	2652	384.1(789)	1.2984	25.668	2582											
54.051	47.658	2496	331.9(738)	1.3038	25.668	2510	0.644	1617	2.198	0.51289	34.563	0.2631	4949	12.888	143.2	0.30	0.39
COMBUSTOR	0	28	21 4														
54.811	61.109	2798	381.3(836)	1.2914	25.829	2637											
54.811	47.750	2646	329.7(785)	1.2967	25.829	2570	0.626	1608	2.211	0.48501	34.563	0.2782	5130	12.118	148.4	0.30	0.46
COMBUSTOR	0	29	22 4														
55.760	59.958	3033	377.1(911)	1.2798	26.094	2720											
55.760	47.199	2877	323.3(858)	1.2853	26.095	2655	0.618	1642	2.229	0.45468	34.563	0.2968	5351	11.599	154.8	0.30	0.58
COMBUSTOR	0	30	23 8														
56.226	57.034	3185	395.7(1086)	1.2759	23.073	2959											
56.226	46.928	3053	343.3(1035)	1.2807	23.074	2902	0.558	1619	2.485	0.37164	34.999	0.3677	6161	9.351	176.6	0.60	0.41
COMBUSTOR	0	31	24 2														
56.236	57.024	3188	395.6(1087)	1.2757	23.076	2960											
56.236	46.922	3055	343.2(1036)	1.2806	23.077	2903	0.558	1619	2.485	0.37138	34.999	0.3679	6184	9.347	176.7	0.60	0.41
COMBUSTOR	0	32	25 4														
56.291	56.776	3273	398.4(1118)	1.2713	23.160	2989											
56.291	46.348	3134	339.6(1064)	1.2765	23.162	2930	0.570	1671	2.492	0.37040	34.999	0.3689	6197	9.618	177.1	0.60	0.43
COMBUSTOR	0	33	26 3														
56.431	56.663	3300	394.7(1128)	1.2699	23.188	2997											
56.431	46.305	3160	338.8(1074)	1.2751	23.190	2939	0.569	1672	2.494	0.36767	34.999	0.3717	6227	9.555	177.9	0.60	0.44
COMBUSTOR	0	34	27 8														
56.511	57.376	3342	394.3(1143)	1.2676	23.232	3011											
56.511	46.763	3200	337.1(1088)	1.2730	23.233	2953	0.573	1692	2.496	0.37179	34.999	0.3675	6243	9.778	178.4	0.60	0.45
COMBUSTOR	0	35	28 4														
56.791	57.513	3457	392.9(1185)	1.2613	23.350	3047											
56.791	46.600	3309	332.4(1128)	1.2671	23.353	2988	0.583	1741	2.503	0.37056	34.999	0.3688	6295	10.026	179.9	0.60	0.49
COMBUSTOR	0	36	29 4														
57.017	57.544	3574	391.8(1228)	1.2546	23.473	3082											
57.017	46.243	3418	327.2(1168)	1.2609	23.477	3021	0.596	1799	2.510	0.36986	34.999	0.3695	6333	10.343	181.0	0.60	0.53
COMBUSTOR	0	37	30 4														
57.741	57.135	3850	388.3(1331)	1.2375	23.775	3157											
57.741	45.100	3679	313.9(1263)	1.2450	23.784	3094	0.624	1930	2.526	0.36412	34.999	0.3753	6434	10.920	183.8	0.60	0.62

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58.761	56.951	4102	383.5(1425)	1.2203	24.065	3216											
58.761	44.025	3916	298.3(1351)	1.2289	24.083	3152	0.655	2065	2.538	0.36180	34.999	0.3777	6505	11.610	185.9	0.60	0.70
COMBUSTOR	0	39	32 5														
60.771	56.678	4526	374.4(1683)	1.1891	24.585	3299											
60.771	39.828	4273	243.6(1481)	1.2003	24.645	3217	0.798	2557	2.553	0.37439	34.999	0.3650	6449	14.880	184.3	0.60	0.87
COMBUSTOR	0	40	33 4														
62.191	57.034	4620	368.1(1618)	1.1821	24.715	3314											
62.191	36.225	4314	205.4(1494)	1.1952	24.800	3215	0.888	2853	2.554	0.38454	34.999	0.3553	6401	17.051	182.9	0.60	0.92
SONIC THROAT		41	34 202														
62.191	61.834	4803	368.1(1688)	1.1701	24.941	3347											
62.191	36.225	4457	171.4(1546)	1.1831	25.072	3234	0.970	3137	2.549	0.38454	34.999	0.3553	6710	18.748	191.7	0.60	1.00
COMBUSTOR REGEN		42	35 5														
62.191	57.034	4670	398.8(1639)	1.1792	24.692	3330											
62.191	34.961	4342	221.6(1506)	1.1930	24.790	3223	0.924	2977	2.560	0.38454	34.999	0.3553	6421	17.793	183.5	0.60	0.92
NOZZLE AE		43	36 4														
87.267	57.034	4620	368.1(1608)	1.1821	24.715	3314											
87.267	1.410	2287	-637.0(720)	1.2864	24.926	2422	2.928	7092	2.554	0.07054	34.999	1.9372	8414	7.774	240.4	0.60	0.92
NOZZLE PO		44	37 4														
87.267	57.034	4620	368.1(1608)	1.1821	24.715	3314											
87.267	0.617	1895	-774.4(583)	1.3028	24.926	2219	3.407	7561	2.554	0.03973	34.999	3.4390	8769	4.669	250.5	0.60	0.92
NOZZLE AE REGEN		45	38 4														
87.267	57.034	4670	398.8(1639)	1.1792	24.692	3330											
87.267	1.432	2338	-618.9(738)	1.2844	24.926	2447	2.916	7136	2.560	0.07054	34.999	1.9372	8473	7.822	242.1	0.60	0.92
NOZZLE PO REGEN		46	39 4														
87.267	57.034	4670	398.8(1639)	1.1792	24.692	3330											
87.267	0.617	1932	-761.7(596)	1.3012	24.926	2239	3.403	7620	2.560	0.03929	34.999	3.4783	8840	4.653	252.6	0.60	0.92
FICTIVE COMBUSTR		68	61 0														
62.191	188.838	4874	368.1(1715)	1.1810	25.022	3382											
62.191	0.617	1551	-1001.8(464)	1.3172	25.257	2005	4.129	8279	2.460	0.05388	34.999	2.5359	9408	6.933	268.8	0.60	1.00
FICTIVE NOZZLE		69	62 0														
87.267	30.255	4519	327.8(1578)	1.1797	24.710	3275											
87.267	1.889	2733	-475.2(882)	1.2691	24.924	2631	2.406	6330	2.596	0.07054	34.999	1.9371	7823	6.939	223.5	0.60	0.92

READING = 0093 BLOCK = 66 TIME = 158.329 MACH 5.2 PT = 416.749 TT = 2119.8

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.400E 00	0.000	-5.209E-01	0.000	0.000	0.000	2.470E-02	2.267E 00	3.359E-03	0.000	0.000
1.836E 01	1.400E 00	0.000	-4.655E 01	0.000	0.000	0.000	1.634E 02	2.267E 00	3.359E-03	0.000	0.000
3.070E 01	2.555E 00	0.000	-2.069E 02	0.000	0.000	0.000	5.053E 02	4.138E 00	6.131E-03	0.000	0.000
3.308E 01	4.229E 00	0.000	-4.267E 02	0.000	0.000	0.000	6.804E 02	6.850E 00	1.015E-02	0.000	0.000
3.317E 01	4.263E 00	6.045E 00	-4.933E 02	0.000	0.000	0.000	6.843E 02	6.903E 00	1.023E-02	9.791E 00	1.451E-02
3.317E 01	4.265E 00	6.022E 00	-4.934E 02	0.000	0.000	0.000	6.846E 02	6.907E 00	1.023E-02	9.753E 00	1.445E-02
3.555E 01	4.405E 00	4.574E 00	-5.018E 02	0.000	0.000	0.000	7.222E 02	7.134E 00	1.057E-02	7.407E 00	1.097E-02
3.584E 01	4.396E 00	3.450E 00	-5.144E 02	-2.374E 02	-2.374E 02	0.000	7.518E 02	7.120E 00	1.055E-02	5.587E 00	8.278E-03
3.606E 01	4.390E 00	4.848E 00	-5.241E 02	-2.404E 02	-2.404E 02	0.000	7.743E 02	7.110E 00	1.053E-02	7.851E 00	1.163E-02
3.640E 01	4.791E 00	7.526E 00	-5.376E 02	-2.463E 02	-2.463E 02	0.000	8.178E 02	7.760E 00	1.150E-02	1.219E 01	1.806E-02
3.701E 01	4.560E 00	1.091E 01	-5.524E 02	-2.935E 02	-2.541E 02	-3.938E 01	8.738E 02	7.385E 00	1.094E-02	1.766E 01	2.617E-02
3.730E 01	5.916E 00	1.276E 01	-5.600E 02	-3.100E 02	-2.586E 02	-5.144E 01	9.051E 02	9.581E 00	1.420E-02	2.067E 01	3.062E-02
3.803E 01	9.315E 00	1.530E 01	-6.147E 02	-3.515E 02	-2.704E 02	-8.103E 01	9.848E 02	1.509E 01	2.235E-02	2.478E 01	3.671E-02
3.832E 01	1.236E 01	1.631E 01	-6.423E 02	-3.684E 02	-2.756E 02	-9.275E 01	1.017E 03	2.002E 01	2.966E-02	2.642E 01	3.914E-02
3.875E 01	1.685E 01	1.646E 01	-6.925E 02	-3.942E 02	-2.843E 02	-1.100E 02	1.066E 03	2.729E 01	4.044E-02	2.666E 01	3.950E-02
3.879E 01	1.728E 01	1.647E 01	-6.973E 02	-3.968E 02	-2.852E 02	-1.116E 02	1.070E 03	2.799E 01	4.147E-02	2.668E 01	3.953E-02
3.901E 01	1.957E 01	1.723E 01	-7.204E 02	-4.105E 02	-2.901E 02	-1.203E 02	1.095E 03	3.170E 01	4.697E-02	2.791E 01	4.135E-02
3.930E 01	1.980E 01	1.824E 01	-7.455E 02	-4.292E 02	-2.973E 02	-1.319E 02	1.129E 03	3.078E 01	4.560E-02	2.954E 01	4.376E-02
3.950E 01	1.861E 01	1.297E 01	-7.592E 02	-4.423E 02	-3.026E 02	-1.397E 02	1.152E 03	3.014E 01	4.466E-02	2.101E 01	3.112E-02
3.979E 01	1.975E 01	5.275E 00	-7.851E 02	-4.620E 02	-3.109E 02	-1.510E 02	1.186E 03	3.198E 01	4.738E-02	8.543E 00	1.266E-02
4.000E 01	2.056E 01	5.228E 00	-8.087E 02	-4.764E 02	-3.174E 02	-1.590E 02	1.210E 03	3.330E 01	4.934E-02	8.466E 00	1.254E-02
4.040E 01	2.374E 01	5.137E 00	-8.548E 02	-5.049E 02	-3.307E 02	-1.742E 02	1.257E 03	3.845E 01	5.696E-02	8.320E 00	1.233E-02
4.041E 01	2.382E 01	5.135E 00	-8.558E 02	-5.056E 02	-3.310E 02	-1.746E 02	1.258E 03	3.857E 01	5.715E-02	8.316E 00	1.232E-02
4.129E 01	3.077E 01	4.937E 00	-9.693E 02	-5.787E 02	-3.639E 02	-2.149E 02	1.362E 03	4.984E 01	7.385E-02	7.995E 00	1.185E-02
4.135E 01	3.129E 01	4.922E 00	-9.783E 02	-5.849E 02	-3.665E 02	-2.184E 02	1.370E 03	5.068E 01	7.508E-02	7.971E 00	1.181E-02
4.150E 01	3.247E 01	5.662E 00	-9.990E 02	-5.993E 02	-3.728E 02	-2.266E 02	1.387E 03	5.259E 01	7.792E-02	9.170E 00	1.359E-02
4.246E 01	1.946E 01	1.043E 01	-1.076E 03	-6.980E 02	-4.155E 02	-2.825E 02	1.502E 03	3.152E 01	4.670E-02	1.689E 01	2.503E-02
4.407E 01	2.806E 01	1.843E 01	-1.111E 03	-8.741E 02	-4.880E 02	-3.861E 02	1.697E 03	4.059E 01	6.014E-02	2.985E 01	4.423E-02
4.431E 01	2.590E 01	1.866E 01	-1.116E 03	-8.997E 02	-4.983E 02	-4.014E 02	1.726E 03	4.194E 01	6.214E-02	3.022E 01	4.478E-02
[illegible]	2.755E 01	1.912E 01	-1.129E 03	-9.450E 02	-5.185E 02	-4.265E 02	1.784E 03	4.462E 01	6.611E-02	3.097E 01	4.588E-02
[illegible]	2.760E 01	1.914E 01	-1.129E 03	-9.462E 02	-5.191E 02	-4.272E 02	1.786E 03	4.470E 01	6.623E-02	3.099E 01	4.592E-02
4.626E 01	2.161E 01	2.055E 01	-1.116E 03	-1.058E 03	-5.816E 02	-4.769E 02	1.966E 03	3.500E 01	5.186E-02	3.328E 01	4.930E-02
4.731E 01	1.731E 01	2.156E 01	-1.061E 03	-1.129E 03	-6.284E 02	-5.010E 02	2.096E 03	2.803E 01	4.153E-02	3.492E 01	5.174E-02
4.731E 01	1.730E 01	2.156E 01	-1.061E 03	-1.129E 03	-6.284E 02	-5.010E 02	2.096E 03	2.801E 01	4.151E-02	3.492E 01	5.174E-02
4.811E 01	1.039E 01	2.196E 01	-9.941E 02	-1.184E 03	-6.650E 02	-5.192E 02	2.195E 03	1.682E 01	2.493E-02	3.557E 01	5.270E-02
4.876E 01	2.229E 01	2.229E 01	-9.230E 02	-1.229E 03	-6.956E 02	-5.338E 02	2.277E 03	3.609E 01	5.347E-02	3.609E 01	5.347E-02
4.929E 01	2.255E 01	2.255E 01	-8.611E 02	-1.266E 03	-7.209E 02	-5.456E 02	2.343E 03	3.652E 01	5.411E-02	3.652E 01	5.411E-02
5.070E 01	3.336E 01	3.336E 01	-6.544E 02	-1.380E 03	-7.902E 02	-5.894E 02	2.521E 03	5.402E 01	8.004E-02	5.402E 01	8.004E-02
5.280E 01	4.470E 01	4.470E 01	-2.247E 02	-1.568E 03	-8.989E 02	-6.694E 02	2.787E 03	7.239E 01	1.073E-01	7.239E 01	1.073E-01
5.330E 01	4.757E 01	4.757E 01	-1.047E 02	-1.614E 03	-9.258E 02	-6.887E 02	2.851E 03	7.704E 01	1.141E-01	7.704E 01	1.141E-01
5.404E 01	4.766E 01	4.766E 01	7.708E 01	-1.692E 03	-9.662E 02	-7.262E 02	2.945E 03	7.718E 01	1.144E-01	7.718E 01	1.144E-01
5.405E 01	4.766E 01	4.766E 01	7.950E 01	-1.694E 03	-9.668E 02	-7.269E 02	2.947E 03	7.718E 01	1.144E-01	7.718E 01	1.144E-01
5.481E 01	4.775E 01	4.775E 01	2.644E 02	-1.790E 03	-1.009E 03	-7.810E 02	3.044E 03	7.733E 01	1.146E-01	7.733E 01	1.146E-01
5.576E 01	4.720E 01	4.720E 01	4.903E 02	-1.934E 03	-1.063E 03	-8.709E 02	3.166E 03	7.644E 01	1.133E-01	7.644E 01	1.133E-01
5.623E 01	4.693E 01	4.693E 01	1.321E 03	-2.012E 03	-1.087E 03	-9.243E 02	3.208E 03	7.600E 01	1.126E-01	7.600E 01	1.126E-01
5.624E 01	4.692E 01	4.692E 01	1.324E 03	-2.013E 03	-1.088E 03	-9.255E 02	3.209E 03	7.599E 01	1.126E-01	7.599E 01	1.126E-01
5.629E 01	4.580E 01	4.689E 01	1.337E 03	-2.023E 03	-1.090E 03	-9.323E 02	3.217E 03	7.417E 01	1.099E-01	7.594E 01	1.125E-01
5.643E 01	4.580E 01	4.681E 01	1.368E 03	-2.046E 03	-1.097E 03	-9.495E 02	3.234E 03	7.417E 01	1.099E-01	7.581E 01	1.123E-01
5.651E 01	4.676E 01	4.676E 01	1.387E 03	-2.060E 03	-1.100E 03	-9.593E 02	3.245E 03	7.573E 01	1.122E-01	7.573E 01	1.122E-01
5.679E 01	4.660E 01	4.660E 01	1.448E 03	-2.107E 03	-1.113E 03	-9.939E 02	3.280E 03	7.547E 01	1.118E-01	7.547E 01	1.118E-01
5.702E 01	4.624E 01	4.624E 01	1.493E 03	-2.146E 03	-1.124E 03	-1.022E 03	3.309E 03	7.489E 01	1.110E-01	7.489E 01	1.110E-01
5.774E 01	4.510E 01	4.510E 01	1.617E 03	-2.269E 03	-1.158E 03	-1.111E 03	3.402E 03	7.304E 01	1.082E-01	7.304E 01	1.082E-01
5.876E 01	4.402E 01	4.402E 01	1.720E 03	-2.437E 03	-1.207E 03	-1.231E 03	3.532E 03	7.130E 01	1.056E-01	7.130E 01	1.056E-01
6.077E 01	3.922E 01	3.922E 01	1.730E 03	-2.759E 03	-1.307E 03	-1.451E 03	3.790E 03	6.353E 01	9.412E-02	6.353E 01	9.412E-02
6.219E 01	3.622E 01	3.622E 01	1.730E 03	-2.977E 03	-1.386E 03	-1.591E 03	3.972E 03	5.867E 01	8.692E-02	5.867E 01	8.692E-02
6.465E 01	2.746E 01	2.746E 01	1.730E 03	-3.356E 03	-1.543E 03	-1.813E 03	4.289E 03	4.448E 01	6.590E-02	4.448E 01	6.590E-02

READING = 0093 BLOCK = 66 TIME = 158.329 MACH 5.2 PT = 416.749 TT = 2119.8

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.503E 01	2.500E 01	2.613E 01	1.730E 03	-3.415E 03	-1.570E 03	-1.846E 03	4.337E 03	4.049E 01	5.999E-02	4.232E 01	6.270E-02
6.507E 01	2.500E 01	2.599E 01	1.730E 03	-3.421E 03	-1.572E 03	-1.849E 03	4.342E 03	4.049E 01	5.999E-02	4.208E 01	6.235E-02
6.527E 01	2.367E 01	2.527E 01	1.730E 03	-3.451E 03	-1.587E 03	-1.865E 03	4.368E 03	3.834E 01	5.680E-02	4.093E 01	6.065E-02
6.693E 01	1.265E 01	1.064E 01	1.930E 03	-3.675E 03	-1.690E 03	-1.985E 03	4.583E 03	2.049E 01	3.035E-02	1.723E 01	2.552E-02
6.760E 01	9.621E 00	1.109E 01	2.153E 03	-3.756E 03	-1.725E 03	-2.031E 03	4.665E 03	1.558E 01	2.309E-02	1.796E 01	2.662E-02
6.837E 01	6.140E 00	8.887E 00	2.398E 03	-3.847E 03	-1.762E 03	-2.085E 03	4.760E 03	9.944E 00	1.473E-02	1.439E 01	2.132E-02
6.909E 01	5.036E 00	6.825E 00	2.569E 03	-3.928E 03	-1.792E 03	-2.136E 03	4.848E 03	8.155E 00	1.208E-02	1.105E 01	1.638E-02
6.970E 01	4.100E 00	4.471E 00	2.680E 03	-3.991E 03	-1.814E 03	-2.177E 03	4.922E 03	6.640E 00	9.838E-03	7.241E 00	1.073E-02
7.065E 01	3.126E 00	8.050E-01	2.783E 03	-4.072E 03	-1.845E 03	-2.227E 03	5.036E 03	5.062E 00	7.501E-03	1.304E 00	1.932E-03
7.108E 01	2.685E 00	1.235E 00	2.813E 03	-4.102E 03	-1.857E 03	-2.245E 03	5.088E 03	4.348E 00	6.443E-03	2.000E 00	2.963E-03
7.261E 01	1.838E 00	2.765E 00	2.916E 03	-4.196E 03	-1.895E 03	-2.301E 03	5.273E 03	2.977E 00	4.410E-03	4.478E 00	6.635E-03
7.276E 01	1.755E 00	2.421E 00	2.926E 03	-4.204E 03	-1.898E 03	-2.306E 03	5.290E 03	2.842E 00	4.211E-03	3.921E 00	5.809E-03
7.351E 01	2.061E 00	7.000E-01	2.983E 03	-4.248E 03	-1.913E 03	-2.335E 03	5.374E 03	3.339E 00	4.947E-03	1.134E 00	1.680E-03
7.351E 01	2.063E 00	6.908E-01	2.985E 03	-4.248E 03	-1.913E 03	-2.335E 03	5.375E 03	3.341E 00	4.951E-03	1.119E 00	1.658E-03
7.484E 01	2.605E 00	0.000	3.034E 03	-4.332E 03	-1.936E 03	-2.396E 03	5.427E 03	4.219E 00	6.251E-03	0.000	0.000
7.769E 01	2.370E 00	0.000	3.133E 03	-4.300E 03	-1.972E 03	-2.327E 03	5.525E 03	3.838E 00	5.687E-03	0.000	0.000
8.159E 01	1.705E 00	0.000	3.220E 03	-4.331E 03	-2.004E 03	-2.327E 03	5.630E 03	2.761E 00	4.091E-03	0.000	0.000
8.440E 01	1.800E 00	0.000	3.259E 03	-4.356E 03	-2.029E 03	-2.327E 03	5.684E 03	2.915E 00	4.319E-03	0.000	0.000
8.726E 01	2.430E 00	0.000	3.310E 03	-4.398E 03	-2.071E 03	-2.327E 03	5.707E 03	3.935E 00	5.831E-03	0.000	0.000
8.727E 01	2.431E 00	0.000	3.310E 03	-4.399E 03	-2.071E 03	-2.327E 03	5.707E 03	3.938E 00	5.834E-03	0.000	0.000

READING = 0093 BLOCK = 66 TIME = 158.329 MACH 5.2 PT = 416.749 TT = 2119.8

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.156E 02	1.156E 02	2.209E-03	5.076E-02
4.041E 01	1.658E-01	1.158E 02	2.219E-03	5.301E-02
4.129E 01	1.441E 01	1.302E 02	2.331E-03	5.654E-02
4.135E 01	1.067E 00	1.313E 02	2.340E-03	5.683E-02
4.150E 01	2.444E 00	1.337E 02	2.359E-03	5.749E-02
4.246E 01	1.552E 01	1.492E 02	2.430E-03	5.917E-02
4.407E 01	2.523E 01	1.745E 02	2.464E-03	5.816E-02
4.431E 01	3.651E 00	1.781E 02	2.472E-03	5.826E-02
4.479E 01	7.254E 00	1.854E 02	2.491E-03	5.855E-02
4.480E 01	2.147E-01	1.856E 02	2.492E-03	5.852E-02
4.626E 01	2.167E 01	2.073E 02	2.498E-03	5.514E-02
4.731E 01	1.485E 01	2.221E 02	2.454E-03	5.015E-02
4.731E 01	1.188E-02	2.221E 02	2.455E-03	5.019E-02
4.811E 01	1.074E 01	2.329E 02	2.398E-03	4.533E-02
4.876E 01	8.265E 00	2.411E 02	2.334E-03	4.040E-02
4.929E 01	6.327E 00	2.474E 02	2.276E-03	3.659E-02
5.070E 01	1.511E 01	2.626E 02	2.055E-03	2.753E-02
5.280E 01	1.684E 01	2.794E 02	2.599E-03	5.078E-02
5.330E 01	2.556E 00	2.820E 02	2.660E-03	4.827E-02
5.404E 01	3.714E 00	2.857E 02	3.138E-03	3.953E-02
5.405E 01	5.174E-02	2.857E 02	3.138E-03	3.953E-02
5.481E 01	3.737E 00	2.895E 02	3.001E-03	4.108E-02
5.576E 01	4.348E 00	2.938E 02	3.011E-03	3.985E-02
5.623E 01	1.381E 00	2.952E 02	3.259E-03	3.432E-02
5.624E 01	3.805E-02	2.952E 02	3.120E-03	3.661E-02
5.629E 01	2.079E-01	2.954E 02	3.105E-03	3.719E-02
5.643E 01	5.311E-01	2.960E 02	3.129E-03	3.668E-02
5.651E 01	3.262E-01	2.963E 02	3.465E-03	3.172E-02
5.679E 01	1.162E 00	2.975E 02	3.115E-03	3.771E-02
5.702E 01	9.168E-01	2.984E 02	3.129E-03	3.786E-02
5.774E 01	3.075E 00	3.014E 02	3.117E-03	3.863E-02
5.876E 01	4.618E 00	3.061E 02	3.156E-03	3.862E-02
6.077E 01	1.072E 01	3.168E 02	3.122E-03	4.095E-02
6.219E 01	9.189E 00	3.260E 02	3.197E-03	4.004E-02
6.465E 01	1.951E 01	3.665E 02	3.238E-03	3.938E-02
6.503E 01	3.370E 00	3.698E 02	3.221E-03	3.851E-02
6.507E 01	3.629E-01	3.702E 02	3.221E-03	3.847E-02
6.527E 01	1.824E 00	3.720E 02	3.214E-03	3.793E-02
6.693E 01	1.482E 01	3.868E 02	3.085E-03	2.583E-02
6.760E 01	5.282E 00	3.921E 02	3.064E-03	2.398E-02
6.837E 01	5.638E 00	3.977E 02	3.018E-03	1.942E-02
6.909E 01	4.638E 00	4.024E 02	2.984E-03	1.649E-02
6.970E 01	3.405E 00	4.058E 02	2.942E-03	1.308E-02
7.065E 01	3.934E 00	4.097E 02	2.840E-03	7.313E-03
7.108E 01	1.393E 00	4.111E 02	2.839E-03	7.293E-03
7.261E 01	5.181E 00	4.163E 02	2.856E-03	8.226E-03
7.276E 01	4.935E-01	4.168E 02	2.842E-03	7.637E-03
7.351E 01	2.074E 00	4.189E 02	2.784E-03	5.545E-03
7.351E 01	3.459E-03	4.189E 02	2.783E-03	5.533E-03
7.484E 01	1.371E 00	4.202E 02	2.862E-03	8.999E-03
7.769E 01	3.016E 00	4.233E 02	2.838E-03	8.339E-03
8.159E 01	2.827E 00	4.261E 02	2.777E-03	6.441E-03
8.440E 01	1.338E 00	4.274E 02	2.772E-03	6.684E-03
8.726E 01	6.200E-01	4.280E 02	2.801E-03	8.369E-03
8.727E 01	0.000	4.280E 02	2.801E-03	8.373E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2610.	(LBF)
MEASURED THRUST	2619.	(LBF)
CALCULATED SPECIFIC IMPULSE	2934.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2944.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.8988	
MEASURED THRUST COEFFICIENT	0.9019	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	7877.	(LBF)
NET THRUST	2664.	(LBF)
SPECIFIC IMPULSE	2995.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.9177	

MOMENTUM AND FORCES

INLET FRICTION DRAG	115.6	(LBF)
INLET MOMENTUM CHANGE	-970.4	(LBF)
COMBUSTOR FRICTION DRAG	210.3	(LBF)
COMBUSTOR STRUT DRAG	157.67	(LBF)
COMBUSTOR MOMENTUM CHANGE	2158.	(LBF)
NOZZLE FRICTION DRAG	81.11	(LBF)
NOZZLE STRUT DRAG	77.74	(LBF)
NOZZLE MOMENTUM CHANGE	1422.	(LBF)
NOZZLE PRESSURE INTEGRAL	1581.	(LBF)
EXTERNAL FRICTION DRAG	50.95	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1319.	(LBF)
TOTAL EXTERNAL DRAG	-1370.	(LBF)
TOTAL STRUT DRAG	235.40	(LBF)
CAVITY FORCE	-1338.	(LBF)
CALCULATED LOAD CELL FORCE	-98.	(LBF)
MEASURED LOAD CELL FORCE	-89.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-133.5, 0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2909	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.175	(IN)
NOZZLE SHROUD TRAILING EDGE	73.515	(IN)
NOZZLE PLUG TRAILING EDGE	87.267	(IN)
STRUT LEADING EDGE	56.431	(IN)
STRUT TRAILING EDGE	65.031	(IN)
COMBUSTOR EXIT	62.191	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8650	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2796	
DELTA PT2	0.1408	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4531	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2846	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9055	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9182	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9258	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8928	
ENTHALPY AT P0 - SUPERSONIC	-22.91	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-8.04	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0261
EQUIVALENCE RATIO	0.598
COMBUSTOR EFFICIENCY	0.916
TOTAL PRESSURE RATIO	0.3020
COMBUSTOR EFFECTIVENESS	0.8760
INJECTOR DISCHARGE COEFFICIENTS	0.8331, 0.6643,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9297
NOZZLE COEFFICIENT - CT	0.8571
PROCESS EFFICIENCY	0.8618
KINETIC ENERGY EFFICIENCY	0.8427

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.276	
1C	44.300	
2A	48.751	
2C	46.250	
3A	54.041	E
3B	56.226	E
4	44.776	

Reading 93

t = 162.83 sec.

READING = 0093 BLOCK = 71 TIME = 162.829 MACH 5.2 PT = 416.749 TT = 2112.3

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	416.749	2112	407.6(535)	1.3198	29.269	2176											
0.000	0.586	355	-43.2(84)	1.3986	29.268	919	5.170	4750	1.761	0.14838	32.867	0.8648	4982	10.952	151.6		
SPIKE TIP NS		2	0 6														
0.600	21.362	2112	407.6(535)	1.3199	29.269	2176											
0.600	19.366	2063	393.7(521)	1.3216	29.269	2152	0.388	834	1.963	0.14838	32.867	0.8648	5142	1.924	156.4		
WIND TUNNEL		3	0 0														
0.000	416.749	2112	407.6(535)	1.3198	29.269	2176											
0.000	0.621	361	-41.8(86)	1.3987	29.268	926											
							5.120	4742	1.761	0.15436	34.191	0.8648	5177	11.376	151.4		
SPIKE TIP NS		4	0 0														
0.600	21.362	2112	407.6(535)	1.3199	29.269	2176											
0.600	19.177	2058	392.4(520)	1.3218	29.269	2149	0.407	874	1.963	0.15436	34.191	0.8648	5177	2.098	151.4		
INLET THROAT		5	0 4														
40.400	189.527	2062	393.6(521)	1.3216	29.269	2152											
40.400	20.481	1169	154.8(282)	1.3653	29.268	1647	2.099	3457	1.808	1.14711	34.191	0.1119	4260	64.103	124.6		
INLET UPNRSK		6	0 3														
40.400	189.527	2062	393.6(521)	1.3216	29.269	2152											
40.400	18.575	1139	147.1(275)	1.3672	29.268	1626	2.159	3512	1.808	1.08483	34.191	0.1231	4317	59.202	126.3		
INLET DNNRSK		7	0 4														
40.400	119.138	2062	393.6(521)	1.3216	29.269	2152											
40.400	98.336	1968	367.3(495)	1.3249	29.269	2104	0.545	1146	1.840	1.08483	34.191	0.1231	4317	19.321	126.3		
COMBUSTOR	0	8	1 4														
40.410	189.421	2062	393.6(521)	1.3216	29.269	2152											
40.410	21.972	1191	160.5(288)	1.3639	29.268	1661	2.056	3415	1.808	1.19317	34.191	0.1119	4259	63.328	124.6		
COMBUSTOR	0	9	2 4														
41.288	158.848	2055	391.5(519)	1.3218	29.269	2148											
41.288	25.557	1294	186.8(314)	1.3574	29.268	1727	1.853	3200	1.819	1.19713	34.191	0.1115	4131	59.541	120.8		
COMBUSTOR	0	10	3 4														
41.353	156.721	2054	391.3(519)	1.3219	29.269	2148											
41.353	25.844	1302	188.9(316)	1.3569	29.268	1732	1.837	3183	1.820	1.19656	34.191	0.1116	4121	59.187	120.5		
COMBUSTOR	0	11	4 4														
41.500	152.510	2053	391.0(518)	1.3219	29.269	2147											
41.500	26.578	1320	193.6(321)	1.3558	29.268	1744	1.802	3143	1.822	1.19844	34.191	0.1114	4098	58.535	119.9		
COMBUSTOR	0	12	5 5														
42.460	135.729	2043	388.2(516)	1.3223	29.269	2142											
42.460	29.215	1388	211.2(339)	1.3517	29.268	1785	1.667	2976	1.828	1.18659	34.191	0.1125	4005	54.886	117.1		
COMBUSTOR	0	13	6 4														
44.073	124.467	2025	383.4(511)	1.3229	29.269	2133											
44.073	29.731	1413	217.7(345)	1.3502	29.268	1800	1.599	2879	1.832	1.14733	34.191	0.1163	3945	51.330	115.4		
COMBUSTOR	0	14	7 4														
44.310	123.214	2023	382.7(510)	1.3230	29.269	2132											
44.310	29.910	1417	218.8(346)	1.3500	29.268	1803	1.589	2863	1.832	1.14480	34.191	0.1166	3936	50.944	115.1		
COMBUSTOR	0	15	8 4														
44.788	120.529	2018	381.4(509)	1.3231	29.269	2130											
44.788	30.382	1428	221.5(349)	1.3494	29.268	1809	1.564	2828	1.833	1.14009	34.191	0.1171	3917	50.109	114.6		
COMBUSTOR	0	16	9 4														
44.800	120.466	2018	381.4(509)	1.3231	29.269	2130											
44.800	30.388	1428	221.6(349)	1.3494	29.268	1809	1.563	2828	1.833	1.13988	34.191	0.1171	3916	50.088	114.5		
COMBUSTOR	0	17	10 4														
46.260	113.561	2007	378.2(506)	1.3235	29.269	2124											
46.260	28.390	1416	218.5(346)	1.3501	29.268	1802											
							1.569	2827	1.835	1.07363	34.191	0.1243	3908	47.168	114.3		
COMBUSTOR	0	18	11 4														
47.310	111.447	2000	376.2(504)	1.3238	29.269	2120											
47.310	24.681	1367	205.6(333)	1.3530	29.268	1772	1.648	2921	1.836	0.99918	34.191	0.1336	3949	45.361	115.5		

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.313	111.464	2000	376.2(504)	1.3238	29.269	2120											
47.313	24.698	1367	205.7(333)	1.3529	29.268	1772	1.648	2921	1.836	0.99959	34.191	0.1335	3949	45.373	115.5		
COMBUSTOR	0	20	13 3														
48.110	113.658	1994	374.6(502)	1.3240	29.269	2118											
48.110	20.831	1297	187.4(315)	1.3572	29.268	1729	1.770	3060	1.834	0.93120	34.191	0.1434	4017	44.284	117.5		
COMBUSTOR	0	21	14 8														
48.763	120.828	1989	373.2(501)	1.3242	29.269	2115											
48.763	16.824	1202	163.3(291)	1.3632	29.268	1669	1.942	3241	1.829	0.85899	34.191	0.1554	4114	43.266	120.3		
COMBUSTOR	0	22	15 10														
49.293	85.981	1985	372.0(499)	1.3243	29.269	2113											
49.293	70.711	1891	346.3(474)	1.3277	29.269	2065	0.549	1135	1.851	0.80336	34.191	0.1662	4215	14.165	123.3		
COMBUSTOR	0	23	16 6														
50.703	112.150	1973	368.8(496)	1.3247	29.269	2107											
50.703	104.847	1940	359.8(487)	1.3259	29.269	2091	0.320	-668	1.832	0.68469	34.191	0.1950	4525	-7.119	132.3		
COMBUSTOR	0	24	17 202														
52.803	84.989	2034	362.2(515)	1.3218	29.187	2140											
52.803	50.400	1788	294.3(447)	1.3309	29.187	2013	0.916	1844	1.866	0.56316	34.312	0.2379	5037	16.136	146.8	0.01	1.00
COMBUSTOR	0	25	18 200														
53.303	80.801	2029	360.9(514)	1.3220	29.187	2137											
53.303	54.117	1839	308.1(461)	1.3289	29.187	2040	0.796	1625	1.869	0.54015	34.312	0.2480	5170	13.638	150.7	0.01	1.00
COMBUSTOR	0	26	19 5														
54.043	67.754	2701	392.2(825)	1.2970	25.061	2636											
54.043	54.623	2571	347.2(781)	1.3015	25.061	2576	0.582	1501	2.240	0.51727	34.831	0.2629	5303	12.066	152.2	0.36	0.36
COMBUSTOR	0	27	20 2														
54.053	67.746	2703	392.1(826)	1.2969	25.063	2637											
54.053	54.630	2572	347.2(781)	1.3014	25.063	2577	0.582	1501	2.240	0.51688	34.831	0.2631	5306	12.053	152.3	0.36	0.36
COMBUSTOR	0	28	21 4														
54.813	67.170	2816	389.5(862)	1.2915	25.186	2679											
54.813	55.150	2693	346.6(820)	1.2957	25.186	2624	0.558	1464	2.250	0.48879	34.831	0.2782	5515	11.122	158.3	0.36	0.41
COMBUSTOR	0	29	22 4														
55.760	65.803	3141	385.5(969)	1.2754	25.540	2793											
55.760	53.858	3008	337.6(923)	1.2802	25.541	2738	0.565	1548	2.276	0.45827	34.831	0.2967	5770	11.027	165.6	0.36	0.56
COMBUSTOR	0	30	23 5														
56.228	63.114	3350	412.5(1195)	1.2689	22.231	3083											
56.228	53.220	3231	362.4(1147)	1.2734	22.233	3033	0.522	1584	2.575	0.37545	35.351	0.3676	6752	9.242	191.0	0.71	0.40
COMBUSTOR	0	31	24 2														
56.238	63.093	3353	412.8(1196)	1.2688	22.234	3084											
56.238	53.207	3233	362.3(1148)	1.2733	22.236	3034	0.522	1584	2.576	0.37511	35.351	0.3679	6755	9.236	191.1	0.71	0.40
COMBUSTOR	0	32	25 4														
56.293	63.310	3279	312.2(1168)	1.2727	22.165	3059											
56.293	53.791	3166	365.2(1122)	1.2769	22.166	3011	0.510	1535	2.570	0.37405	35.351	0.3690	6770	8.922	191.5	0.71	0.38
COMBUSTOR	0	33	26 3														
56.433	63.190	3315	411.6(1181)	1.2707	22.200	3071											
56.433	53.695	3201	364.1(1136)	1.2750	22.201	3023	0.510	1541	2.573	0.37143	35.351	0.3716	6804	8.897	192.5	0.71	0.39
COMBUSTOR	0	34	27 21														
56.513	60.580	5069	411.2(1867)	1.1532	24.097	3473											
56.513	52.832	4988	354.5(1832)	1.1548	24.149	3444	0.489	1684	2.655	0.37566	35.351	0.3674	6822	9.833	193.0	0.71	1.00
COMBUSTOR	0	35	28 21														
56.793	60.874	5068	409.9(1866)	1.1533	24.099	3473											
56.793	52.450	4980	348.3(1828)	1.1551	24.156	3441	0.510	1756	2.654	0.37448	35.351	0.3686	6881	10.221	194.6	0.71	1.00
COMBUSTOR	0	36	29 21														
57.019	60.991	5067	408.8(1866)	1.1534	24.101	3472											
57.019	51.712	4970	340.6(1823)	1.1554	24.163	3437	0.537	1847	2.654	0.37358	35.351	0.3695	6923	10.725	195.8	0.71	1.00
COMBUSTOR	0	37	30 21														
57.743	60.936	5063	405.4(1864)	1.1535	24.105	3471											
57.743	49.350	4938	318.6(1810)	1.1562	24.183	3426	0.608	2084	2.653	0.36778	35.351	0.3753	7033	11.912	199.0	0.71	1.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR 0 38 31 21																	
58.763	61.339	5059	400.7(1862)	1.1538	24.111	3469											
58.763	48.037	4913	300.5(1799)	1.1571	24.201	3417	0.655	2240	2.652	0.36544	35.351	0.3777	7108	12.721	201.1	0.71	1.00
COMBUSTOR 0 39 32 200																	
60.773	62.442	5050	391.6(1858)	1.1545	24.125	3466											
60.773	42.375	4818	234.5(1758)	1.1602	24.262	3384	0.828	2804	2.649	0.37816	35.351	0.3650	7042	16.476	199.2	0.71	1.00
COMBUSTOR 0 40 33 200																	
62.193	63.437	5044	385.2(1855)	1.1550	24.134	3464											
62.193	38.906	4750	188.8(1729)	1.1626	24.303	3361	0.933	3135	2.646	0.38841	35.351	0.3553	6986	18.923	197.6	0.71	1.00
SONIC THROAT 41 34 200																	
62.193	68.410	5052	385.2(1858)	1.1557	24.143	3467											
62.193	38.906	4710	159.4(1711)	1.1650	24.333	3348	1.004	3361	2.640	0.38841	35.351	0.3553	7234	20.290	204.6	0.71	1.00
COMBUSTOR REGEN 42 35 6																	
62.193	63.437	5054	394.1(1860)	1.1545	24.123	3468											
62.193	44.260	4839	247.8(1767)	1.1597	24.252	3392	0.798	2706	2.648	0.38841	35.351	0.3553	7001	16.332	198.1	0.71	1.00
NOZZLE AE 43 36 5																	
87.269	63.437	5044	385.2(1851)	1.1550	24.134	3464											
87.269	1.624	2773	-777.2(922)	1.2600	24.660	2654	2.873	7627	2.646	0.07125	35.351	1.9371	9185	8.445	259.8	0.71	1.00
NOZZLE PO 44 37 5																	
87.269	63.437	5044	385.2(1851)	1.1550	24.134	3464											
87.269	0.621	2260	-971.7(729)	1.2799	24.662	2415	3.412	8240	2.646	0.03610	35.351	3.8231	9662	4.623	273.3	0.71	1.00
NOZZLE AE REGEN 45 38 5																	
87.269	63.437	5054	394.1(1860)	1.1545	24.123	3468											
87.269	1.630	2788	-771.4(927)	1.2595	24.660	2661	2.870	7637	2.648	0.07125	35.351	1.9371	9200	8.456	260.2	0.71	1.00
NOZZLE PO REGEN 46 39 5																	
87.269	63.437	5054	394.1(1860)	1.1545	24.123	3468											
87.269	0.621	2271	-967.8(733)	1.2794	24.662	2420	3.411	8255	2.648	0.03600	35.351	3.8344	9680	4.618	273.8	0.71	1.00
FICTIVE COMBUSTR 68 61 0																	
62.193	189.527	5149	385.2(1898)	1.1656	24.256	3508											
62.193	0.621	1758	-1151.6(549)	1.3025	24.662	2148	4.082	8769	2.556	0.04941	35.351	2.7936	10079	6.733	285.1	0.71	1.00
FICTIVE NOZZLE 69 62 0																	
87.269	33.251	4922	338.2(1804)	1.1512	24.114	3418											
87.269	2.159	3268	-575.7(1115)	1.2365	24.647	2855	2.368	6763	2.690	0.07125	35.351	1.9371	8502	7.488	240.5	0.71	1.00

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.400E 00	0.000	-5.226E-01	0.000	0.000	0.000	2.470E-02	2.256E 00	3.359E-03	0.000	0.000
1.836E 01	1.400E 00	0.000	-4.655E 01	0.000	0.000	0.000	1.634E 02	2.256E 00	3.359E-03	0.000	0.000
3.070E 01	2.560E 00	0.000	-2.071E 02	0.000	0.000	0.000	5.053E 02	4.126E 00	6.143E-03	0.000	0.000
3.508E 01	4.236E 00	0.000	-4.273E 02	0.000	0.000	0.000	6.804E 02	6.827E 00	1.016E-02	0.000	0.000
3.517E 01	4.269E 00	6.045E 00	-4.941E 02	0.000	0.000	0.000	6.844E 02	6.880E 00	1.024E-02	9.743E 00	1.451E-02
3.518E 01	4.271E 00	6.022E 00	-4.941E 02	0.000	0.000	0.000	6.847E 02	6.883E 00	1.025E-02	9.705E 00	1.445E-02
3.555E 01	4.405E 00	4.581E 00	-5.026E 02	0.000	0.000	0.000	7.221E 02	7.099E 00	1.057E-02	7.383E 00	1.099E-02
3.584E 01	4.399E 00	3.450E 00	-5.152E 02	-2.287E 02	-2.287E 02	0.000	7.519E 02	7.090E 00	1.056E-02	5.560E 00	8.278E-03
3.606E 01	4.395E 00	4.833E 00	-5.249E 02	-2.315E 02	-2.315E 02	0.000	7.741E 02	7.083E 00	1.055E-02	7.788E 00	1.160E-02
3.648E 01	4.792E 00	7.508E 00	-5.384E 02	-2.372E 02	-2.372E 02	0.000	8.178E 02	7.723E 00	1.150E-02	1.210E 01	1.802E-02
3.701E 01	4.567E 00	1.088E 01	-5.527E 02	-2.813E 02	-2.447E 02	-3.657E 01	8.737E 02	7.361E 00	1.096E-02	1.754E 01	2.612E-02
3.730E 01	5.933E 00	1.275E 01	-5.613E 02	-2.969E 02	-2.491E 02	-4.785E 01	9.052E 02	9.561E 00	1.424E-02	2.055E 01	3.059E-02
3.803E 01	9.322E 00	1.531E 01	-6.160E 02	-3.357E 02	-2.605E 02	-7.528E 01	9.847E 02	1.502E 01	2.237E-02	2.467E 01	3.673E-02
3.832E 01	1.239E 01	1.634E 01	-6.436E 02	-3.518E 02	-2.655E 02	-8.626E 01	1.017E 03	1.997E 01	2.973E-02	2.633E 01	3.920E-02
3.875E 01	1.686E 01	1.649E 01	-6.939E 02	-3.760E 02	-2.738E 02	-1.022E 02	1.066E 03	2.718E 01	4.047E-02	2.657E 01	3.956E-02
3.879E 01	1.731E 01	1.650E 01	-6.989E 02	-3.785E 02	-2.747E 02	-1.038E 02	1.071E 03	2.790E 01	4.154E-02	2.659E 01	3.959E-02
3.901E 01	1.959E 01	1.726E 01	-7.218E 02	-3.914E 02	-2.795E 02	-1.118E 02	1.095E 03	3.157E 01	4.700E-02	2.781E 01	4.141E-02
3.930E 01	1.901E 01	1.827E 01	-7.470E 02	-4.092E 02	-2.865E 02	-1.226E 02	1.129E 03	3.064E 01	4.562E-02	2.945E 01	4.385E-02
3.950E 01	1.862E 01	1.314E 01	-7.605E 02	-4.215E 02	-2.916E 02	-1.299E 02	1.152E 03	3.002E 01	4.469E-02	2.117E 01	3.152E-02
3.979E 01	1.977E 01	5.500E 00	-7.862E 02	-4.403E 02	-2.999E 02	-1.404E 02	1.186E 03	3.186E 01	4.743E-02	8.864E 00	1.320E-02
4.000E 01	2.057E 01	5.426E 00	-8.094E 02	-4.539E 02	-3.061E 02	-1.478E 02	1.210E 03	3.316E 01	4.937E-02	8.744E 00	1.302E-02
4.040E 01	2.376E 01	5.283E 00	-8.551E 02	-4.810E 02	-3.191E 02	-1.619E 02	1.257E 03	3.829E 01	5.701E-02	8.514E 00	1.268E-02
4.041E 01	2.384E 01	5.279E 00	-8.561E 02	-4.817E 02	-3.194E 02	-1.622E 02	1.258E 03	3.842E 01	5.720E-02	8.508E 00	1.267E-02
4.129E 01	3.082E 01	4.965E 00	-9.696E 02	-5.514E 02	-3.516E 02	-1.998E 02	1.362E 03	4.968E 01	7.396E-02	8.002E 00	1.191E-02
4.135E 01	3.134E 01	4.942E 00	-9.785E 02	-5.572E 02	-3.542E 02	-2.030E 02	1.370E 03	5.051E 01	7.521E-02	7.965E 00	1.186E-02
4.150E 01	3.251E 01	5.672E 00	-9.989E 02	-5.707E 02	-3.602E 02	-2.105E 02	1.387E 03	5.240E 01	7.801E-02	9.140E 00	1.361E-02
4.246E 01	1.950E 01	1.043E 01	-1.077E 03	-6.644E 02	-4.021E 02	-2.622E 02	1.502E 03	3.143E 01	4.679E-02	1.681E 01	2.503E-02
4.407E 01	2.503E 01	1.843E 01	-1.141E 03	-8.313E 02	-4.737E 02	-3.576E 02	1.697E 03	4.034E 01	6.006E-02	2.970E 01	4.423E-02
4.431E 01	2.584E 01	1.867E 01	-1.116E 03	-8.553E 02	-4.839E 02	-3.714E 02	1.726E 03	4.165E 01	6.201E-02	3.009E 01	4.481E-02
4.479E 01	2.748E 01	1.916E 01	-1.129E 03	-8.986E 02	-5.041E 02	-3.946E 02	1.785E 03	4.429E 01	6.595E-02	3.088E 01	4.598E-02
4.480E 01	2.752E 01	1.918E 01	-1.129E 03	-8.996E 02	-5.046E 02	-3.951E 02	1.786E 03	4.436E 01	6.605E-02	3.090E 01	4.601E-02
4.626E 01	2.159E 01	2.067E 01	-1.115E 03	-1.008E 03	-5.670E 02	-4.406E 02	1.965E 03	3.480E 01	5.181E-02	3.331E 01	4.960E-02
4.731E 01	1.732E 01	2.175E 01	-1.059E 03	-1.076E 03	-6.134E 02	-4.627E 02	2.096E 03	2.792E 01	4.157E-02	3.505E 01	5.218E-02
4.731E 01	1.732E 01	2.175E 01	-1.060E 03	-1.076E 03	-6.135E 02	-4.628E 02	2.096E 03	2.791E 01	4.156E-02	3.505E 01	5.219E-02
4.811E 01	1.552E 01	2.950E 01	-9.808E 02	-1.131E 03	-6.498E 02	-4.808E 02	2.195E 03	2.502E 01	3.725E-02	4.755E 01	7.080E-02
4.876E 01	3.886E 01	3.886E 01	-8.753E 02	-1.178E 03	-6.801E 02	-4.975E 02	2.277E 03	5.778E 01	8.604E-02	5.778E 01	8.604E-02
4.929E 01	4.101E 01	4.101E 01	-7.691E 02	-1.217E 03	-7.051E 02	-5.124E 02	2.343E 03	6.609E 01	9.841E-02	6.609E 01	9.841E-02
5.070E 01	4.324E 01	4.324E 01	-4.577E 02	-1.329E 03	-7.735E 02	-5.558E 02	2.521E 03	6.968E 01	1.037E-01	6.968E 01	1.037E-01
5.280E 01	5.040E 01	5.040E 01	5.784E 01	-1.510E 03	-8.803E 02	-6.300E 02	2.787E 03	8.122E 01	1.209E-01	8.122E 01	1.209E-01
5.330E 01	5.412E 01	5.412E 01	1.937E 02	-1.555E 03	-9.066E 02	-6.488E 02	2.851E 03	8.721E 01	1.299E-01	8.721E 01	1.299E-01
5.404E 01	5.462E 01	5.462E 01	4.013E 02	-1.630E 03	-9.461E 02	-6.836E 02	2.946E 03	8.803E 01	1.311E-01	8.803E 01	1.311E-01
5.405E 01	5.463E 01	5.463E 01	4.041E 02	-1.631E 03	-9.467E 02	-6.842E 02	2.947E 03	8.804E 01	1.311E-01	8.804E 01	1.311E-01
5.481E 01	5.515E 01	5.515E 01	6.169E 02	-1.724E 03	-9.881E 02	-7.354E 02	3.044E 03	8.888E 01	1.323E-01	8.888E 01	1.323E-01
5.576E 01	5.386E 01	5.386E 01	8.756E 02	-1.862E 03	-1.041E 03	-8.215E 02	3.166E 03	8.680E 01	1.292E-01	8.680E 01	1.292E-01
5.623E 01	5.322E 01	5.322E 01	1.859E 03	-1.938E 03	-1.064E 03	-8.733E 02	3.208E 03	8.577E 01	1.277E-01	8.577E 01	1.277E-01
5.624E 01	5.321E 01	5.321E 01	1.862E 03	-1.939E 03	-1.065E 03	-8.745E 02	3.209E 03	8.575E 01	1.277E-01	8.575E 01	1.277E-01
5.629E 01	5.445E 01	5.313E 01	1.877E 03	-1.948E 03	-1.067E 03	-8.810E 02	3.217E 03	8.775E 01	1.307E-01	8.563E 01	1.275E-01
5.643E 01	5.445E 01	5.294E 01	1.912E 03	-1.971E 03	-1.074E 03	-8.977E 02	3.234E 03	8.775E 01	1.307E-01	8.532E 01	1.270E-01
5.651E 01	5.283E 01	5.283E 01	1.933E 03	-1.984E 03	-1.077E 03	-9.073E 02	3.245E 03	8.514E 01	1.268E-01	8.514E 01	1.268E-01
5.679E 01	5.245E 01	5.245E 01	2.002E 03	-2.031E 03	-1.090E 03	-9.409E 02	3.280E 03	8.453E 01	1.259E-01	8.453E 01	1.259E-01
5.702E 01	5.171E 01	5.171E 01	2.053E 03	-2.068E 03	-1.100E 03	-9.681E 02	3.309E 03	8.334E 01	1.241E-01	8.334E 01	1.241E-01
5.774E 01	4.935E 01	4.935E 01	2.190E 03	-2.189E 03	-1.133E 03	-1.056E 03	3.402E 03	7.953E 01	1.184E-01	7.953E 01	1.184E-01
5.876E 01	4.804E 01	4.804E 01	2.302E 03	-2.355E 03	-1.180E 03	-1.174E 03	3.532E 03	7.742E 01	1.153E-01	7.742E 01	1.153E-01
6.077E 01	4.237E 01	4.237E 01	2.313E 03	-2.679E 03	-1.278E 03	-1.401E 03	3.790E 03	6.829E 01	1.017E-01	6.829E 01	1.017E-01
6.219E 01	3.891E 01	3.891E 01	2.313E 03	-2.904E 03	-1.354E 03	-1.550E 03	3.972E 03	6.270E 01	9.336E-02	6.270E 01	9.336E-02
6.466E 01	2.941E 01	2.941E 01	2.313E 03	-3.303E 03	-1.505E 03	-1.798E 03	4.289E 03	4.740E 01	7.057E-02	4.740E 01	7.057E-02

READING = 0093 BLOCK = 71 TIME = 162.829 MACH 5.2 PT = 416.749 TT = 2112.3 PAGE 5

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.503E 01	2.685E 01	2.796E 01	2.313E 03	-3.367E 03	-1.530E 03	-1.837E 03	4.337E 03	4.327E 01	6.443E-02	4.506E 01	6.710E-02
6.507E 01	2.685E 01	2.781E 01	2.313E 03	-3.373E 03	-1.533E 03	-1.841E 03	4.342E 03	4.327E 01	6.443E-02	4.481E 01	6.673E-02
6.527E 01	2.545E 01	2.704E 01	2.313E 03	-3.406E 03	-1.546E 03	-1.859E 03	4.368E 03	4.101E 01	6.106E-02	4.357E 01	6.488E-02
6.693E 01	1.379E 01	1.139E 01	2.528E 03	-3.641E 03	-1.648E 03	-1.993E 03	4.583E 03	2.222E 01	3.308E-02	1.835E 01	2.732E-02
6.760E 01	1.049E 01	1.213E 01	2.770E 03	-3.724E 03	-1.684E 03	-2.041E 03	4.665E 03	1.690E 01	2.516E-02	1.956E 01	2.912E-02
6.837E 01	6.690E 00	9.644E 00	3.037E 03	-3.817E 03	-1.722E 03	-2.096E 03	4.760E 03	1.078E 01	1.605E-02	1.554E 01	2.314E-02
6.909E 01	5.442E 00	7.315E 00	3.223E 03	-3.900E 03	-1.753E 03	-2.147E 03	4.848E 03	8.770E 00	1.306E-02	1.179E 01	1.755E-02
6.970E 01	4.385E 00	4.771E 00	3.341E 03	-3.965E 03	-1.776E 03	-2.188E 03	4.922E 03	7.067E 00	1.052E-02	7.689E 00	1.145E-02
7.065E 01	3.304E 00	8.100E-01	3.451E 03	-4.050E 03	-1.809E 03	-2.241E 03	5.036E 03	5.325E 00	7.929E-03	1.305E 00	1.944E-03
7.108E 01	2.815E 00	1.276E 00	3.482E 03	-4.083E 03	-1.821E 03	-2.261E 03	5.088E 03	4.537E 00	6.755E-03	2.057E 00	3.062E-03
7.261E 01	1.863E 00	2.935E 00	3.590E 03	-4.183E 03	-1.861E 03	-2.322E 03	5.273E 03	3.003E 00	4.471E-03	4.730E 00	7.043E-03
7.276E 01	1.770E 00	2.564E 00	3.600E 03	-4.192E 03	-1.864E 03	-2.328E 03	5.290E 03	2.852E 00	4.247E-03	4.132E 00	6.153E-03
7.351E 01	2.188E 00	7.100E-01	3.660E 03	-4.239E 03	-1.880E 03	-2.359E 03	5.374E 03	3.527E 00	5.251E-03	1.144E 00	1.704E-03
7.352E 01	2.191E 00	7.001E-01	3.661E 03	-4.240E 03	-1.880E 03	-2.359E 03	5.375E 03	3.530E 00	5.256E-03	1.128E 00	1.680E-03
7.484E 01	2.930E 00	0.000	3.715E 03	-4.328E 03	-1.904E 03	-2.425E 03	5.427E 03	4.722E 00	7.031E-03	0.000	0.000
7.769E 01	2.465E 00	0.000	3.823E 03	-4.464E 03	-1.942E 03	-2.522E 03	5.525E 03	3.972E 00	5.915E-03	0.000	0.000
8.159E 01	1.815E 00	0.000	3.914E 03	-4.497E 03	-1.975E 03	-2.522E 03	5.630E 03	2.925E 00	4.355E-03	0.000	0.000
8.440E 01	1.925E 00	0.000	3.956E 03	-4.822E 03	-2.000E 03	-2.522E 03	5.684E 03	3.102E 00	4.619E-03	0.000	0.000
8.726E 01	2.585E 00	0.000	4.010E 03	-4.566E 03	-2.044E 03	-2.522E 03	5.707E 03	4.166E 00	6.203E-03	0.000	0.000
8.727E 01	2.586E 00	0.000	4.010E 03	-4.566E 03	-2.044E 03	-2.522E 03	5.707E 03	4.168E 00	6.206E-03	0.000	0.000

READING = 0093 BLOCK = 71 TIME = 162.829 MACH 5.2 PT = 416.749 TT = 2112.3

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.157E 02	1.157E 02	2.206E-03	5.081E-02
4.041E 01	1.664E-01	1.158E 02	2.217E-03	5.323E-02
4.129E 01	1.449E 01	1.303E 02	2.328E-03	5.683E-02
4.135E 01	1.071E 00	1.314E 02	2.337E-03	5.707E-02
4.150E 01	2.421E 00	1.338E 02	2.356E-03	5.775E-02
4.246E 01	1.558E 01	1.494E 02	2.427E-03	5.942E-02
4.407E 01	2.534E 01	1.747E 02	2.462E-03	5.845E-02
4.431E 01	3.634E 00	1.784E 02	2.470E-03	5.855E-02
4.479E 01	7.310E 00	1.857E 02	2.490E-03	5.882E-02
4.480E 01	1.838E-01	1.859E 02	2.490E-03	5.882E-02
4.626E 01	2.175E 01	2.076E 02	2.496E-03	5.542E-02
4.731E 01	1.491E 01	2.225E 02	2.453E-03	5.040E-02
4.731E 01	4.242E-02	2.226E 02	2.453E-03	5.042E-02
4.811E 01	1.077E 01	2.333E 02	2.384E-03	4.528E-02
4.876E 01	8.354E 00	2.417E 02	2.287E-03	3.960E-02
4.929E 01	4.966E 00	2.467E 02	2.916E-03	5.080E-02
5.070E 01	1.837E 00	2.485E 02	2.958E-03	4.409E-02
5.280E 01	3.316E 00	2.518E 02	2.565E-03	5.544E-02
5.330E 01	2.472E 00	2.543E 02	2.647E-03	5.170E-02
5.404E 01	3.544E 00	2.578E 02	3.187E-03	4.088E-02
5.405E 01	4.812E-02	2.579E 02	3.053E-03	4.363E-02
5.481E 01	3.432E 00	2.613E 02	3.030E-03	4.266E-02
5.576E 01	4.071E 00	2.654E 02	3.009E-03	4.250E-02
5.623E 01	1.345E 00	2.667E 02	3.281E-03	3.701E-02
5.624E 01	3.789E-02	2.668E 02	3.147E-03	3.936E-02
5.629E 01	2.017E-01	2.670E 02	3.160E-03	3.862E-02
5.643E 01	4.981E-01	2.675E 02	3.132E-03	3.909E-02
5.651E 01	3.202E-01	2.678E 02	3.548E-03	3.351E-02
5.679E 01	1.264E 00	2.690E 02	3.521E-03	3.446E-02
5.702E 01	1.059E 00	2.701E 02	3.493E-03	3.552E-02
5.774E 01	3.629E 00	2.737E 02	3.431E-03	3.777E-02
5.876E 01	5.491E 00	2.792E 02	3.391E-03	3.922E-02
6.077E 01	1.259E 01	2.918E 02	3.299E-03	4.291E-02
6.219E 01	1.057E 01	3.024E 02	3.258E-03	4.409E-02
6.466E 01	2.216E 01	3.482E 02	3.295E-03	4.341E-02
6.503E 01	3.831E 00	3.521E 02	3.284E-03	4.239E-02
6.507E 01	4.118E-01	3.525E 02	3.283E-03	4.236E-02
6.527E 01	2.067E 00	3.545E 02	3.279E-03	4.173E-02
6.693E 01	1.667E 01	3.712E 02	3.192E-03	2.835E-02
6.760E 01	5.906E 00	3.771E 02	3.177E-03	2.648E-02
6.837E 01	6.300E 00	3.834E 02	3.142E-03	2.135E-02
6.909E 01	5.153E 00	3.886E 02	3.112E-03	1.797E-02
6.970E 01	3.759E 00	3.923E 02	3.074E-03	1.417E-02
7.065E 01	4.297E 00	3.966E 02	2.979E-03	7.763E-03
7.108E 01	1.503E 00	3.981E 02	2.977E-03	7.725E-03
7.261E 01	5.586E 00	4.037E 02	2.992E-03	8.711E-03
7.276E 01	5.318E-01	4.042E 02	2.979E-03	8.036E-03
7.351E 01	2.235E 00	4.065E 02	2.927E-03	5.889E-03
7.352E 01	3.735E-03	4.065E 02	2.927E-03	5.877E-03
7.484E 01	1.521E 00	4.080E 02	3.006E-03	1.010E-02
7.769E 01	3.329E 00	4.113E 02	2.972E-03	8.816E-03
8.159E 01	3.063E 00	4.144E 02	2.917E-03	6.921E-03
8.440E 01	1.461E 00	4.159E 02	2.912E-03	7.210E-03
8.726E 01	6.776E-01	4.165E 02	2.935E-03	9.003E-03
8.727E 01	0.000	4.165E 02	2.936E-03	9.006E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	3271.	(LBF)
MEASURED THRUST	3133.	(LBF)
CALCULATED SPECIFIC IMPULSE	3096.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2966.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	1.1226	
MEASURED THRUST COEFFICIENT	1.0752	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	8515.	(LBF)
NET THRUST	3284.	(LBF)
SPECIFIC IMPULSE	3109.	(LBF-SEC/LBM)
THRUST COEFFICIENT	1.1271	

MOMENTUM AND FORCES

INLET FRICTION DRAG	115.7	(LBF)
INLET MOMENTUM CHANGE	-970.7	(LBF)
COMBUSTOR FRICTION DRAG	186.7	(LBF)
COMBUSTOR STRUT DRAG	184.43	(LBF)
COMBUSTOR MOMENTUM CHANGE	2725.	(LBF)
NOZZLE FRICTION DRAG	90.47	(LBF)
NOZZLE STRUT DRAG	90.93	(LBF)
NOZZLE MOMENTUM CHANGE	1516.	(LBF)
NOZZLE PRESSURE INTEGRAL	1698.	(LBF)
EXTERNAL FRICTION DRAG	50.95	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1325.	(LBF)
TOTAL EXTERNAL DRAG	-1376.	(LBF)
TOTAL STRUT DRAG	275.36	(LBF)
CAVITY FORCE	-1333.	(LBF)
CALCULATED LOAD CELL FORCE	562.	(LBF)
MEASURED LOAD CELL FORCE	424.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -137.0,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2929	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.177	(IN)
NOZZLE SHROUD TRAILING EDGE	73.517	(IN)
NOZZLE PLUG TRAILING EDGE	87.269	(IN)
STRUT LEADING EDGE	56.433	(IN)
STRUT TRAILING EDGE	65.033	(IN)
COMBUSTOR EXIT	62.193	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8648	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2809	
DELTA PT2	0.1415	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4548	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2859	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9051	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9182	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9272	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8942	
ENTHALPY AT P0 - SUPERSONIC	-23.15	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-8.34	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0308
EQUIVALENCE RATIO	0.706
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.3347
COMBUSTOR EFFECTIVENESS	0.9280
INJECTOR DISCHARGE COEFFICIENTS	0.8330, 0.6720,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9256
NOZZLE COEFFICIENT - CT	0.8481
PROCESS EFFICIENCY	0.8492
KINETIC ENERGY EFFICIENCY	0.8333

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.278	
1C	44.300	
2A	48.753	
2C	46.250	
3A	54.043	E
3B	56.228	E
4	44.778	

Reading 93

t = 174.53 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	417.499	2149	417.9(545)	1.3186	29.269	2194											
0.000	0.584	362	-41.6(86)	1.3987	29.268	927	5.170	4795	1.766	0.14657	32.473	0.8650	4969	10.923	153.0		
SPIKE TIP NS		2	0 6														
0.600	21.387	2149	417.9(545)	1.3186	29.269	2194											
0.600	19.409	2099	403.9(531)	1.3203	29.269	2170	0.386	837	1.968	0.14657	32.473	0.8650	5145	1.907	158.4		
WIND TUNNEL		3	0 0														
0.000	417.499	2149	417.9(545)	1.3186	29.269	2194											
0.000	0.622	360	-40.0(87)	1.3988	29.268	936	5.115	4787	1.766	0.15306	33.910	0.8650	5183	11.387	152.9		
SPIKE TIP NS		4	0 0														
0.600	21.387	2149	417.9(545)	1.3186	29.269	2194											
0.600	19.204	2094	402.4(530)	1.3205	29.269	2167	0.407	881	1.968	0.15306	33.910	0.8650	5183	2.096	152.9		
INLET THROAT		5	0 4														
40.400	190.509	2096	403.0(530)	1.3204	29.269	2168											
40.400	20.290	1185	159.0(286)	1.3642	29.268	1657	2.108	3494	1.812	1.13291	33.910	0.1119	4265	64.244	125.8		
INLET UPNRSK		6	0 3														
40.400	190.509	2096	403.0(530)	1.3204	29.269	2168											
40.400	18.529	1157	151.7(279)	1.3661	29.268	1638	2.164	3546	1.812	1.07549	33.910	0.1231	4321	59.262	127.4		
INLET DNNRSK		7	0 4														
40.400	119.252	2096	403.0(530)	1.3204	29.269	2168											
40.400	98.808	2000	376.4(504)	1.3238	29.269	2121	0.544	1153	1.844	1.07549	33.910	0.1231	4321	19.272	127.4		
COMBUSTOR	0	8	1 4														
40.410	190.446	2096	403.0(530)	1.3204	29.269	2168											
40.410	21.905	1210	165.2(293)	1.3627	29.268	1673	2.061	3449	1.812	1.18289	33.910	0.1119	4263	63.407	125.7		
COMBUSTOR	0	9	2 4														
41.286	159.486	2088	400.8(528)	1.3207	29.269	2164											
41.286	25.434	1314	191.9(319)	1.3562	29.268	1740	1.859	3233	1.823	1.18562	33.910	0.1117	4135	59.574	121.9		
COMBUSTOR	0	10	3 4														
41.351	157.513	2087	400.6(528)	1.3207	29.269	2164											
41.351	25.745	1322	194.0(321)	1.3557	29.268	1745	1.843	3216	1.824	1.18632	33.910	0.1116	4125	59.285	121.6		
COMBUSTOR	0	11	4 4														
41.500	153.097	2086	400.2(527)	1.3208	29.269	2163											
41.500	26.464	1340	198.9(326)	1.3545	29.268	1756	1.808	3175	1.826	1.18733	33.910	0.1115	4102	58.582	121.0		
COMBUSTOR	0	12	5 5														
42.460	136.508	2075	397.3(525)	1.3211	29.269	2158											
42.460	29.061	1408	216.3(344)	1.3505	29.268	1797	1.675	3009	1.832	1.17685	33.910	0.1125	4009	55.040	118.2		
COMBUSTOR	0	13	6 4														
44.071	125.229	2057	392.1(519)	1.3218	29.269	2149											
44.071	29.492	1431	222.4(350)	1.3492	29.268	1811	1.609	2914	1.836	1.13732	33.910	0.1164	3950	51.496	116.5		
COMBUSTOR	0	14	7 4														
44.310	124.030	2054	391.3(519)	1.3219	29.269	2148											
44.310	29.661	1435	223.4(351)	1.3490	29.268	1813	1.599	2899	1.836	1.13509	33.910	0.1166	3941	51.134	116.2		
COMBUSTOR	0	15	8 4														
44.786	121.406	2049	390.0(517)	1.3220	29.269	2145											
44.786	30.124	1445	226.1(354)	1.3484	29.268	1819	1.574	2864	1.837	1.13099	33.910	0.1171	3922	50.337	115.6		
COMBUSTOR	0	16	9 4														
44.800	121.289	2049	390.0(517)	1.3220	29.269	2145											
44.800	30.107	1445	226.1(354)	1.3484	29.268	1819	1.574	2863	1.837	1.13013	33.910	0.1171	3921	50.291	115.6		
COMBUSTOR	0	17	10 4														
46.260	114.423	2037	386.6(514)	1.3225	29.269	2139											
46.260	28.089	1432	222.6(350)	1.3492	29.268	1811	1.581	2864	1.839	1.06439	33.910	0.1244	3914	47.378	115.4		
COMBUSTOR	0	18	11 4														
47.310	112.412	2029	384.4(512)	1.3227	29.269	2135											
47.310	24.420	1381	209.5(337)	1.3528	29.268	1781	1.661	2959	1.839	0.99067	33.910	0.1336	3954	45.554	116.6		

C-2

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	4														
47.311	112.438	2029	384.4(	512)	1.3227	29.269	2135											
47.311	24.451	1382	209.5(	337)	1.3521	29.268	1781	1.661	2958	1.839	0.99140	33.910	0.1335	3954	45.574	116.6		
COMBUSTOR	0	20	13	5														
48.110	112.000	2023	382.8(	510)	1.3230	29.269	2132											
48.110	21.132	1327	195.4(	323)	1.3553	29.268	1748	1.752	3062	1.839	0.92331	33.910	0.1434	4003	43.936	118.1		
COMBUSTOR	0	21	14	4														
48.761	110.339	2018	381.4(	509)	1.3231	29.269	2130											
48.761	18.247	1279	182.9(	310)	1.3583	29.268	1718	1.835	3152	1.839	0.85195	33.910	0.1554	4049	41.736	119.4		
COMBUSTOR	0	22	15	4														
49.291	108.695	2015	380.4(	508)	1.3233	29.269	2128											
49.291	16.246	1242	173.5(	301)	1.3606	29.268	1695	1.898	3217	1.839	0.79677	33.910	0.1662	4082	39.836	120.4		
COMBUSTOR	0	23	16	9														
50.701	117.711	2002	376.9(	504)	1.3237	29.269	2122											
50.701	11.351	1098	136.8(	264)	1.3699	29.268	1598	2.169	3467	1.832	0.67907	33.910	0.1950	4221	36.585	124.5		
COMBUSTOR	0	24	17	202														
52.801	77.231	2061	370.0(	523)	1.3209	29.187	2154											
52.801	37.500	1725	287.0(	430)	1.3336	29.187	1980	1.089	2156	1.877	0.55855	34.030	0.2379	4565	18.718	134.2	0.01	1.00
COMBUSTOR	0	25	18	200														
53.301	73.577	2057	368.7(	522)	1.3210	29.187	2151											
53.301	40.717	1778	291.5(	445)	1.3313	29.187	2008	0.978	1965	1.879	0.53572	34.030	0.2480	4664	16.356	137.1		
																	0.01	1.00
COMBUSTOR	0	26	19	3														
54.041	58.234	2774	392.9(	809)	1.2923	26.423	2597											
54.041	41.419	2566	324.6(	741)	1.2995	26.423	2505	0.738	1850	2.171	0.51067	34.387	0.2629	4766	14.683	138.6	0.25	0.49
COMBUSTOR	0	27	20	2														
54.051	58.224	2775	392.9(	809)	1.2922	26.425	2597											
54.051	41.429	2568	324.6(	742)	1.2994	26.425	2505	0.738	1849	2.171	0.51028	34.387	0.2681	4768	14.666	138.7	0.25	0.49
COMBUSTOR	0	28	21	4														
54.811	57.409	2895	390.3(	846)	1.2863	26.564	2640											
54.811	42.150	2701	325.7(	783)	1.2932	26.564	2557	0.703	1799	2.180	0.48255	34.387	0.2782	4926	13.490	143.3	0.25	0.57
COMBUSTOR	0	29	22	4														
55.760	56.329	3087	386.5(	906)	1.2767	26.790	2705											
55.760	42.174	2898	322.3(	844)	1.2836	26.791	2627	0.682	1793	2.194	0.45237	34.387	0.2968	5122	12.604	149.0	0.25	0.69
COMBUSTOR	0	30	23	5														
56.226	53.184	3286	408.5(	1077)	1.2699	24.173	2930											
56.226	42.186	3127	347.5(	1018)	1.2759	24.174	2865	0.610	1748	2.415	0.36893	34.744	0.3677	5861	10.023	168.7	0.49	0.48
COMBUSTOR	0	31	24	2														
56.236	53.176	3288	408.5(	1078)	1.2698	24.175	2930											
56.236	42.186	3129	347.5(	1019)	1.2758	24.177	2865	0.610	1748	2.415	0.36866	34.744	0.3679	5863	10.015	168.8	0.49	0.48
COMBUSTOR	0	32	25	4														
56.291	52.889	3379	408.3(	1110)	1.2649	24.270	2959											
56.291	41.469	3210	342.7(	1047)	1.2714	24.272	2891	0.627	1812	2.421	0.36769	34.744	0.3689	5875	10.354	169.1	0.49	0.51
COMBUSTOR	0	33	26	3														
56.431	52.785	3401	407.7(	1118)	1.2636	24.295	2966											
56.431	41.478	3233	342.2(	1055)	1.2702	24.298	2899	0.624	1810	2.423	0.36499	34.744	0.3717	5902	10.266	169.9	0.49	0.52
COMBUSTOR	0	34	27	6														
56.511	53.564	3404	407.3(	1119)	1.2634	24.299	2967											
56.511	42.193	3238	342.5(	1057)	1.2699	24.302	2900	0.621	1801	2.422	0.36907	34.744	0.3675	5917	10.329	170.3	0.49	0.52
COMBUSTOR	0	35	28	4														
56.791	53.748	3488	406.1(	1148)	1.2587	24.391	2991											
56.791	42.200	3317	339.1(	1085)	1.2655	24.394	2925	0.626	1832	2.427	0.36785	34.744	0.3688	5964	10.471	171.7	0.49	0.55
COMBUSTOR	0	36	29	4														
57.017	53.833	3573	405.1(	1178)	1.2537	24.486	3016											
57.017	42.010	3397	335.0(	1112)	1.2610	24.490	2949	0.635	1873	2.431	0.36716	34.744	0.3695	5998	10.690	172.6	0.49	0.58
COMBUSTOR	0	37	30	4														
57.741	53.613	3768	402.0(	1247)	1.2417	24.709	3068											
57.741	41.400	3582	325.6(	1177)	1.2498	24.717	3001	0.651	1955	2.442	0.36146	34.744	0.3753	6091	10.984	175.3	0.49	0.66

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58.761	53.535	3968	397.8(1318)	1.2284	24.948	3117											
58.761	40.612	3769	312.7(1243)	1.2375	24.963	3048	0.677	2063	2.451	0.35916	34.744	0.3777	6157	11.516	177.2	0.49	0.74
COMBUSTOR	0	39	32 4														
60.771	53.506	4291	389.6(1434)	1.2051	25.355	3184											
60.771	36.637	4023	266.3(1331)	1.2177	25.396	3097	0.802	2484	2.462	0.37166	34.744	0.3650	6107	14.344	175.8	0.49	0.88
COMBUSTOR	0	40	33 4														
62.191	53.917	4367	384.0(1461)	1.1994	25.465	3198											
62.191	34.031	4044	233.2(1337)	1.2146	25.520	3094	0.888	2747	2.462	0.38173	34.744	0.3553	6064	16.297	174.5	0.49	0.92
SONIC THROAT		41	34 202														
62.191	58.266	4547	384.0(1526)	1.1871	25.689	3232											
62.191	34.031	4179	202.9(1384)	1.2035	25.777	3115	0.967	3011	2.459	0.38173	34.744	0.3553	6349	17.861	182.7	0.49	1.00
COMBUSTOR	REGEN	42	35 5														
62.191	53.917	4418	410.3(1481)	1.1964	25.450	3213											
62.191	32.770	4070	245.5(1347)	1.2127	25.515	3101	0.926	2872	2.468	0.38173	34.744	0.3553	6084	17.036	175.1	0.49	0.92
NOZZLE AE		43	36 4														
87.267	53.917	4367	384.0(1454)	1.1994	25.465	3198											
87.267	1.289	2057	-526.1(618)	1.2994	25.585	2279	2.961	6748	2.468	0.07002	34.744	1.9372	7927	7.344	228.2	0.49	0.92
NOZZLE PO		44	37 4														
87.267	53.917	4367	384.0(1454)	1.1994	25.465	3198											
87.267	0.622	1734	-633.1(511)	1.3139	25.585	2104	3.391	7134	2.462	0.04239	34.744	3.1997	8214	4.700	236.4	0.49	0.92
NOZZLE AE REGEN		45	38 4														
87.267	53.917	4418	410.3(1481)	1.1964	25.450	3213											
87.267	1.308	2100	-511.3(633)	1.2976	25.585	2301	2.951	6791	2.468	0.07002	34.744	1.9372	7982	7.390	229.7	0.49	0.92
NOZZLE PO REGEN		46	39 4														
87.267	53.917	4418	410.3(1481)	1.1964	25.450	3213											
87.267	0.622	1766	-622.6(522)	1.3123	25.585	2122	3.388	7189	2.468	0.04195	34.744	3.2338	8279	4.687	238.3	0.49	0.92
FICTIVE COMBUSTR		68	61 0														
62.191	190.509	4593	384.0(1543)	1.1975	25.742	3259											
62.191	0.622	1376	-839.1(395)	1.3314	25.872	1876	4.171	7823	2.367	0.05928	34.744	2.2884	8813	7.207	253.7	0.49	1.00
FICTIVE NOZZLE		69	62 0														
87.267	29.057	4278	348.8(1427)	1.1982	25.462	3164											
87.267	1.722	2467	-384.8(759)	1.2833	25.584	2480	2.443	6059	2.503	0.07003	34.744	1.9371	7397	6.594	212.9	0.49	0.92

READING = 0093 BLOCK = 84 TIME = 174.529 MACH 5.2 PT = 417.499 TT = 2149.0

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.400E 00	0.000	-5.233E-01	0.000	0.000	0.000	2.470E-02	2.250E 00	3.353E-03	-0.000	0.000
1.836E 01	1.400E 00	0.000	-4.435E 01	0.000	0.000	0.000	1.634E 02	2.250E 00	3.353E-03	0.000	0.000
3.070E 01	2.560E 00	0.000	-2.071E 02	0.000	0.000	0.000	5.053E 02	4.114E 00	6.132E-03	0.000	0.000
3.508E 01	4.242E 00	0.000	-4.275E 02	0.000	0.000	0.000	6.804E 02	6.817E 00	1.016E-02	0.000	0.000
3.517E 01	4.274E 00	6.056E 00	-4.942E 02	0.000	0.000	0.000	6.843E 02	6.868E 00	1.024E-02	9.734E 00	1.451E-02
3.517E 01	4.276E 00	6.033E 00	-4.943E 02	0.000	0.000	0.000	6.846E 02	6.872E 00	1.024E-02	9.696E 00	1.445E-02
3.555E 01	4.410E 00	4.578E 00	-5.028E 02	0.000	0.000	0.000	7.222E 02	7.088E 00	1.056E-02	7.358E 00	1.097E-02
3.584E 01	4.401E 00	3.450E 00	-5.153E 02	-2.427E 02	-2.427E 02	0.000	7.518E 02	7.074E 00	1.054E-02	5.545E 00	8.263E-03
3.606E 01	4.395E 00	4.849E 00	-5.250E 02	-2.458E 02	-2.458E 02	0.000	7.743E 02	7.063E 00	1.053E-02	7.794E 00	1.162E-02
3.648E 01	4.804E 00	7.532E 00	-5.386E 02	-2.518E 02	-2.518E 02	0.000	8.178E 02	7.720E 00	1.151E-02	1.211E 01	1.804E-02
3.701E 01	4.567E 00	1.092E 01	-5.535E 02	-2.979E 02	-2.598E 02	-3.806E 01	8.738E 02	7.341E 00	1.094E-02	1.755E 01	2.615E-02
3.730E 01	5.924E 00	1.277E 01	-5.612E 02	-3.141E 02	-2.644E 02	-4.971E 01	9.051E 02	9.520E 00	1.419E-02	2.053E 01	3.060E-02
3.803E 01	9.322E 00	1.532E 01	-6.158E 02	-3.548E 02	-2.765E 02	-7.832E 01	9.848E 02	1.498E 01	2.233E-02	2.462E 01	3.670E-02
3.832E 01	1.236E 01	1.634E 01	-6.434E 02	-3.715E 02	-2.818E 02	-8.966E 01	1.017E 03	1.987E 01	2.961E-02	2.626E 01	3.913E-02
3.875E 01	1.685E 01	1.646E 01	-6.936E 02	-3.970E 02	-2.907E 02	-1.063E 02	1.066E 03	2.707E 01	4.035E-02	2.646E 01	3.943E-02
3.879E 01	1.727E 01	1.647E 01	-6.984E 02	-3.995E 02	-2.916E 02	-1.079E 02	1.070E 03	2.776E 01	4.137E-02	2.648E 01	3.946E-02
3.901E 01	1.956E 01	1.726E 01	-7.214E 02	-4.131E 02	-2.967E 02	-1.163E 02	1.095E 03	3.144E 01	4.686E-02	2.775E 01	4.135E-02
3.930E 01	1.901E 01	1.831E 01	-7.465E 02	-4.316E 02	-3.041E 02	-1.275E 02	1.129E 03	3.055E 01	4.552E-02	2.943E 01	4.386E-02
3.950E 01	1.862E 01	1.296E 01	-7.601E 02	-4.447E 02	-3.096E 02	-1.351E 02	1.152E 03	2.993E 01	4.461E-02	2.084E 01	3.105E-02
3.979E 01	1.978E 01	5.150E 00	-7.862E 02	-4.643E 02	-3.182E 02	-1.461E 02	1.186E 03	3.180E 01	4.739E-02	8.277E 00	1.234E-02
4.000E 01	2.062E 01	5.128E 00	-8.100E 02	-4.787E 02	-3.249E 02	-1.538E 02	1.210E 03	3.314E 01	4.939E-02	8.242E 00	1.228E-02
4.040E 01	2.378E 01	5.086E 00	-8.564E 02	-5.071E 02	-3.386E 02	-1.685E 02	1.257E 03	3.822E 01	5.696E-02	8.174E 00	1.218E-02
4.041E 01	2.386E 01	5.085E 00	-8.574E 02	-5.078E 02	-3.390E 02	-1.689E 02	1.258E 03	3.835E 01	5.715E-02	8.172E 00	1.218E-02
4.129E 01	3.078E 01	4.993E 00	-9.710E 02	-5.810E 02	-3.730E 02	-2.080E 02	1.362E 03	4.947E 01	7.373E-02	8.024E 00	1.196E-02
4.135E 01	3.130E 01	4.986E 00	-9.800E 02	-5.872E 02	-3.758E 02	-2.115E 02	1.370E 03	5.030E 01	7.496E-02	8.013E 00	1.194E-02
4.150E 01	3.247E 01	5.723E 00	-1.001E 03	-6.016E 02	-3.822E 02	-2.194E 02	1.387E 03	5.219E 01	7.778E-02	9.198E 00	1.371E-02
4.246E 01	1.942E 01	1.047E 01	-1.078E 03	-7.006E 02	-4.266E 02	-2.740E 02	1.502E 03	3.122E 01	4.653E-02	1.682E 01	2.507E-02
4.407E 01	2.492E 01	1.843E 01	-1.111E 03	-8.773E 02	-5.023E 02	-3.750E 02	1.697E 03	4.006E 01	5.970E-02	2.962E 01	4.415E-02
4.431E 01	2.574E 01	1.868E 01	-1.117E 03	-9.029E 02	-5.132E 02	-3.898E 02	1.726E 03	4.137E 01	6.165E-02	3.002E 01	4.473E-02
4.479E 01	2.736E 01	1.916E 01	-1.129E 03	-9.487E 02	-5.345E 02	-4.142E 02	1.784E 03	4.398E 01	6.554E-02	3.080E 01	4.590E-02
4.480E 01	2.741E 01	1.918E 01	-1.129E 03	-9.500E 02	-5.351E 02	-4.149E 02	1.786E 03	4.406E 01	6.566E-02	3.082E 01	4.594E-02
4.626E 01	2.156E 01	2.067E 01	-1.115E 03	-1.064E 03	-6.010E 02	-4.635E 02	1.966E 03	3.464E 01	5.163E-02	3.323E 01	4.952E-02
4.731E 01	1.734E 01	2.175E 01	-1.059E 03	-1.137E 03	-6.499E 02	-4.873E 02	2.096E 03	2.787E 01	4.154E-02	3.495E 01	5.209E-02
4.731E 01	1.734E 01	2.175E 01	-1.059E 03	-1.137E 03	-6.499E 02	-4.873E 02	2.096E 03	2.786E 01	4.152E-02	3.496E 01	5.210E-02
4.811E 01	1.042E 01	1.833E 01	-9.992E 02	-1.193E 03	-6.880E 02	-5.048E 02	2.195E 03	1.675E 01	2.497E-02	2.947E 01	4.392E-02
4.876E 01	1.555E 01	1.555E 01	-9.456E 02	-1.238E 03	-7.196E 02	-5.182E 02	2.277E 03	2.500E 01	3.725E-02	2.500E 01	3.725E-02
4.929E 01	1.329E 01	1.329E 01	-9.057E 02	-1.274E 03	-7.456E 02	-5.285E 02	2.343E 03	2.136E 01	3.183E-02	2.136E 01	3.183E-02
5.070E 01	2.829E 01	2.829E 01	-7.520E 02	-1.390E 03	-8.168E 02	-5.737E 02	2.521E 03	4.547E 01	6.777E-02	4.547E 01	6.777E-02
5.280E 01	3.750E 01	3.750E 01	-3.898E 02	-1.583E 03	-9.272E 02	-6.557E 02	2.787E 03	6.027E 01	8.982E-02	6.027E 01	8.982E-02
5.330E 01	4.072E 01	4.072E 01	-2.881E 02	-1.627E 03	-9.543E 02	-6.727E 02	2.851E 03	6.544E 01	9.753E-02	6.544E 01	9.753E-02
5.404E 01	4.142E 01	4.142E 01	-1.313E 02	-1.700E 03	-9.950E 02	-7.048E 02	2.945E 03	6.657E 01	9.921E-02	6.657E 01	9.921E-02
5.405E 01	4.143E 01	4.143E 01	-1.292E 02	-1.701E 03	-9.955E 02	-7.053E 02	2.947E 03	6.658E 01	9.923E-02	6.658E 01	9.923E-02
5.481E 01	4.215E 01	4.215E 01	8.279E 01	-1.790E 03	-1.038E 03	-7.516E 02	3.044E 03	6.774E 01	1.010E-01	6.774E 01	1.010E-01
5.576E 01	4.217E 01	4.217E 01	2.334E 02	-1.921E 03	-1.092E 03	-8.284E 02	3.166E 03	6.778E 01	1.010E-01	6.778E 01	1.010E-01
5.623E 01	4.219E 01	4.219E 01	9.734E 02	-1.990E 03	-1.116E 03	-8.740E 02	3.208E 03	6.780E 01	1.010E-01	6.780E 01	1.010E-01
5.624E 01	4.219E 01	4.219E 01	9.762E 02	-1.992E 03	-1.117E 03	-8.751E 02	3.209E 03	6.780E 01	1.010E-01	6.780E 01	1.010E-01
5.629E 01	4.075E 01	4.219E 01	9.882E 02	-2.000E 03	-1.119E 03	-8.808E 02	3.217E 03	6.549E 01	9.760E-02	6.780E 01	1.010E-01
5.643E 01	4.075E 01	4.219E 01	1.016E 03	-2.021E 03	-1.128E 03	-8.955E 02	3.234E 03	6.549E 01	9.760E-02	6.780E 01	1.010E-01
5.651E 01	4.219E 01	4.219E 01	1.033E 03	-2.033E 03	-1.129E 03	-9.039E 02	3.245E 03	6.781E 01	1.011E-01	6.781E 01	1.011E-01
5.679E 01	4.220E 01	4.220E 01	1.088E 03	-2.075E 03	-1.142E 03	-9.332E 02	3.280E 03	6.782E 01	1.011E-01	6.782E 01	1.011E-01
5.702E 01	4.201E 01	4.201E 01	1.129E 03	-2.109E 03	-1.152E 03	-9.567E 02	3.309E 03	6.752E 01	1.006E-01	6.752E 01	1.006E-01
5.774E 01	4.140E 01	4.140E 01	1.242E 03	-2.218E 03	-1.186E 03	-1.032E 03	3.402E 03	6.654E 01	9.916E-02	6.654E 01	9.916E-02
5.876E 01	4.061E 01	4.061E 01	1.337E 03	-2.365E 03	-1.234E 03	-1.131E 03	3.532E 03	6.527E 01	9.728E-02	6.527E 01	9.728E-02
6.077E 01	3.664E 01	3.664E 01	1.346E 03	-2.649E 03	-1.332E 03	-1.317E 03	3.790E 03	5.888E 01	8.775E-02	5.888E 01	8.775E-02
6.219E 01	3.403E 01	3.403E 01	1.346E 03	-2.844E 03	-1.408E 03	-1.436E 03	3.972E 03	5.469E 01	8.151E-02	5.469E 01	8.151E-02
6.465E 01	2.598E 01	2.598E 01	1.346E 03	-3.183E 03	-1.559E 03	-1.624E 03	4.289E 03	4.175E 01	6.222E-02	4.175E 01	6.222E-02

READING = 0093 BLOCK = 84 TIME = 174.529 MACH 5.2 PT = 417.499 TT = 2149.0

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.503E 01	2.372E 01	2.475E 01	1.346E 03	-3.236E 03	-1.584E 03	-1.652E 03	4.337E 03	3.813E 01	5.683E-02	3.977E 01	5.927E-02
6.507E 01	2.372E 01	2.462E 01	1.346E 03	-3.242E 03	-1.587E 03	-1.655E 03	4.342E 03	3.813E 01	5.683E-02	3.956E 01	5.896E-02
6.527E 01	2.243E 01	2.396E 01	1.346E 03	-3.269E 03	-1.600E 03	-1.669E 03	4.368E 03	3.605E 01	5.372E-02	3.851E 01	5.740E-02
6.693E 01	1.167E 01	9.812E 00	1.534E 03	-3.467E 03	-1.696E 03	-1.771E 03	4.583E 03	1.876E 01	2.796E-02	1.577E 01	2.350E-02
6.760E 01	8.862E 00	1.024E 01	1.740E 03	-3.538E 03	-1.728E 03	-1.810E 03	4.665E 03	1.424E 01	2.123E-02	1.645E 01	2.452E-02
6.837E 01	5.630E 00	8.485E 00	1.965E 03	-3.618E 03	-1.760E 03	-1.858E 03	4.760E 03	9.048E 00	1.349E-02	1.315E 01	1.960E-02
6.909E 01	4.645E 00	6.265E 00	2.123E 03	-3.691E 03	-1.787E 03	-1.904E 03	4.848E 03	7.465E 00	1.113E-02	1.007E 01	1.501E-02
6.970E 01	3.810E 00	4.136E 00	2.225E 03	-3.749E 03	-1.808E 03	-1.942E 03	4.922E 03	6.123E 00	9.126E-03	6.647E 00	9.906E-03
7.065E 01	2.984E 00	8.200E-01	2.322E 03	-3.823E 03	-1.837E 03	-1.986E 03	5.036E 03	4.796E 00	7.147E-03	1.318E 00	1.964E-03
7.108E 01	2.610E 00	1.209E 00	2.351E 03	-3.852E 03	-1.850E 03	-2.002E 03	5.088E 03	4.195E 00	6.252E-03	1.944E 00	2.897E-03
7.261E 01	1.722E 00	2.595E 00	2.450E 03	-3.940E 03	-1.889E 03	-2.051E 03	5.273E 03	2.768E 00	4.125E-03	4.171E 00	6.216E-03
7.276E 01	1.635E 00	2.280E 00	2.458E 03	-3.948E 03	-1.892E 03	-2.056E 03	5.290E 03	2.628E 00	3.916E-03	3.664E 00	5.461E-03
7.351E 01	1.938E 00	7.050E-01	2.513E 03	-3.990E 03	-1.907E 03	-2.083E 03	5.374E 03	3.114E 00	4.642E-03	1.133E 00	1.689E-03
7.351E 01	1.939E 00	6.966E-01	2.514E 03	-3.990E 03	-1.907E 03	-2.083E 03	5.375E 03	3.117E 00	4.646E-03	1.120E 00	1.668E-03
7.484E 01	2.475E 00	0.000	2.561E 03	-4.069E 03	-1.930E 03	-2.139E 03	5.427E 03	3.978E 00	5.928E-03	0.000	0.000
7.769E 01	2.280E 00	0.000	2.656E 03	-3.966E 03	-1.968E 03	-1.999E 03	5.525E 03	3.664E 00	5.461E-03	0.000	0.000
8.159E 01	1.605E 00	0.000	2.739E 03	-3.998E 03	-1.999E 03	-1.999E 03	5.630E 03	2.579E 00	3.844E-03	0.000	0.000
8.440E 01	1.700E 00	0.000	2.776E 03	-4.023E 03	-2.024E 03	-1.999E 03	5.684E 03	2.732E 00	4.072E-03	0.000	0.000
8.726E 01	2.265E 00	0.000	2.824E 03	-4.065E 03	-2.066E 03	-1.999E 03	5.707E 03	3.640E 00	5.425E-03	0.000	0.000
8.727E 01	2.266E 00	0.000	2.824E 03	-4.065E 03	-2.066E 03	-1.999E 03	5.707E 03	3.642E 00	5.428E-03	0.000	0.000

READING = 0093 BLOCK = 84 TIME = 174.529 MACH 5.2 PT = 417.499 TT = 2149.0

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.161E 02	1.161E 02	2.214E-03	5.046E-02
4.041E 01	1.673E-01	1.163E 02	2.225E-03	5.310E-02
4.129E 01	1.453E 01	1.308E 02	2.337E-03	5.663E-02
4.135E 01	1.077E 00	1.319E 02	2.345E-03	5.692E-02
4.160E 01	2.465E 00	1.344E 02	2.365E-03	5.758E-02
4.246E 01	1.566E 01	1.500E 02	2.434E-03	5.924E-02
4.407E 01	2.546E 01	1.755E 02	2.468E-03	5.821E-02
4.431E 01	3.685E 00	1.792E 02	2.476E-03	5.831E-02
4.479E 01	7.323E 00	1.865E 02	2.495E-03	5.859E-02
4.480E 01	2.167E-01	1.867E 02	2.495E-03	5.856E-02
4.626E 01	2.189E 01	2.086E 02	2.501E-03	5.515E-02
4.731E 01	1.500E 01	2.236E 02	2.457E-03	5.015E-02
4.731E 01	1.200E-02	2.236E 02	2.457E-03	5.019E-02
4.811E 01	1.084E 01	2.345E 02	2.408E-03	4.550E-02
4.876E 01	8.320E 00	2.428E 02	2.361E-03	4.093E-02
4.929E 01	6.355E 00	2.491E 02	2.326E-03	3.754E-02
5.070E 01	1.523E 01	2.644E 02	2.164E-03	2.927E-02
5.280E 01	1.734E 01	2.817E 02	2.545E-03	4.940E-02
5.330E 01	2.884E 00	2.846E 02	2.615E-03	4.783E-02
5.404E 01	4.162E 00	2.887E 02	3.058E-03	3.991E-02
5.405E 01	5.719E-02	2.888E 02	3.037E-03	4.029E-02
5.461E 01	4.150E 00	2.929E 02	3.017E-03	3.956E-02
5.576E 01	4.811E 00	2.978E 02	3.029E-03	3.817E-02
5.623E 01	1.491E 00	2.993E 02	3.238E-03	3.320E-02
5.624E 01	4.139E-02	2.993E 02	3.238E-03	3.320E-02
5.629E 01	2.281E-01	2.995E 02	3.120E-03	3.537E-02
5.643E 01	5.740E-01	3.001E 02	3.146E-03	3.483E-02
5.651E 01	3.450E-01	3.004E 02	3.401E-03	3.109E-02
5.679E 01	1.212E 00	3.017E 02	3.131E-03	3.851E-02
5.702E 01	9.565E-01	3.026E 02	3.139E-03	3.559E-02
5.774E 01	3.147E 00	3.058E 02	3.130E-03	3.593E-02
5.876E 01	4.620E 00	3.104E 02	3.153E-03	3.600E-02
6.077E 01	1.045E 01	3.208E 02	3.117E-03	3.783E-02
6.219E 01	8.770E 00	3.296E 02	3.167E-03	3.727E-02
6.465E 01	1.839E 01	3.677E 02	3.198E-03	3.667E-02
6.503E 01	3.160E 00	3.709E 02	3.180E-03	3.588E-02
6.507E 01	3.402E-01	3.712E 02	3.180E-03	3.585E-02
6.527E 01	1.710E 00	3.729E 02	3.171E-03	3.535E-02
6.693E 01	1.385E 01	3.868E 02	3.026E-03	2.369E-02
6.760E 01	4.915E 00	3.917E 02	3.004E-03	2.198E-02
6.837E 01	5.234E 00	3.969E 02	2.953E-03	1.774E-02
6.909E 01	4.294E 00	4.012E 02	2.915E-03	1.506E-02
6.970E 01	3.154E 00	4.044E 02	2.871E-03	1.201E-02
7.065E 01	3.686E 00	4.081E 02	2.769E-03	6.936E-03
7.108E 01	1.328E 00	4.094E 02	2.768E-03	6.953E-03
7.261E 01	4.687E 00	4.143E 02	2.781E-03	7.616E-03
7.276E 01	4.603E-01	4.147E 02	2.767E-03	7.069E-03
7.351E 01	1.945E 00	4.167E 02	2.708E-03	5.218E-03
7.351E 01	3.267E-03	4.167E 02	2.708E-03	5.207E-03
7.484E 01	1.291E 00	4.180E 02	2.791E-03	8.413E-03
7.769E 01	2.846E 00	4.208E 02	2.768E-03	7.871E-03
8.159E 01	2.662E 00	4.235E 02	2.703E-03	5.983E-03
8.440E 01	1.252E 00	4.247E 02	2.699E-03	6.224E-03
8.726E 01	5.783E-01	4.253E 02	2.728E-03	7.713E-03
8.727E 01	0.000	4.253E 02	2.728E-03	7.716E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2160.	(LBF)
MEASURED THRUST	2378.	(LBF)
CALCULATED SPECIFIC IMPULSE	2959.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3258.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.7497	
MEASURED THRUST COEFFICIENT	0.8155	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	7449.	(LBF)
NET THRUST	2212.	(LBF)
SPECIFIC IMPULSE	3030.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.7584	

MOMENTUM AND FORCES

INLET FRICTION DRAG	116.1	(LBF)
INLET MOMENTUM CHANGE	-972.5	(LBF)
COMBUSTOR FRICTION DRAG	213.5	(LBF)
COMBUSTOR STRUT DRAG	138.69	(LBF)
COMBUSTOR MOMENTUM CHANGE	1799.	(LBF)
NOZZLE FRICTION DRAG	75.98	(LBF)
NOZZLE STRUT DRAG	68.38	(LBF)
NOZZLE MOMENTUM CHANGE	1338.	(LBF)
NOZZLE PRESSURE INTEGRAL	1478.	(LBF)
EXTERNAL FRICTION DRAG	51.38	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1305.	(LBF)
TOTAL EXTERNAL DRAG	-1357.	(LBF)
TOTAL STRUT DRAG	207.06	(LBF)
CAVITY FORCE	-1444.	(LBF)
CALCULATED LOAD CELL FORCE	-641.	(LBF)
MEASURED LOAD CELL FORCE	-423.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -141.7,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2909	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.175	(IN)
NOZZLE SHROUD TRAILING EDGE	73.515	(IN)
NOZZLE PLUG TRAILING EDGE	87.867	(IN)
STRUT LEADING EDGE	56.431	(IN)
STRUT TRAILING EDGE	65.031	(IN)
COMBUSTOR EXIT	62.191	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8650	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2807	
DELTA PT2	0.1412	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4563	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2856	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9055	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9183	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9263	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8930	
ENTHALPY AT PO - SUPERSONIC	-21.22	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-5.99	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0215
EQUIVALENCE RATIO	0.492
COMBUSTOR EFFICIENCY	0.917
TOTAL PRESSURE RATIO	0.2830
COMBUSTOR EFFECTIVENESS	0.8679
INJECTOR DISCHARGE COEFFICIENTS	0.8253, 0.6781,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9332
NOZZLE COEFFICIENT - CT	0.8630
PROCESS EFFICIENCY	0.8686
KINETIC ENERGY EFFICIENCY	0.8508

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.276	
1C	44.300	
2A	48.751	
2C	46.250	
3A	54.041	E
3B	56.226	E
4	44.776	

Reading 93

t = 182.63 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	417.249	2141	415.6(543)	1.3188	29.269	2190											
0.000	0.585	361	-41.9(86)	1.3987	29.268	925	5.170	4785	1.765	0.14694	32.549	0.8648	4970	10.927	152.7		
SPIKE TIP NS		2	0 6														
0.600	21.387	2141	415.6(543)	1.3189	29.269	2190											
0.600	19.407	2091	401.7(529)	1.3206	29.269	2166	0.386	836	1.967	0.14694	32.549	0.8648	5144	1.909	158.1		
WIND TUNNEL		3	0 0														
0.000	417.249	2141	415.6(543)	1.3188	29.269	2190											
0.000	0.622	387	-40.4(87)	1.3988	29.268	934	5.116	4777	1.765	0.15339	33.976	0.8648	5183	11.387	152.5		
SPIKE TIP NS		4	0 0														
0.600	21.387	2141	415.6(543)	1.3189	29.269	2190											
0.600	19.203	2086	400.2(527)	1.3208	29.269	2163	0.407	880	1.967	0.15339	33.976	0.8648	5182	2.097	152.5		
INLET THROAT		5	0 4														
40.400	192.089	2085	399.9(527)	1.3208	29.269	2163											
40.400	20.154	1174	156.0(284)	1.3650	29.268	1650	2.118	3493	1.810	1.13601	33.976	0.1119	4267	64.381	125.6		
INLET UPNRSK		6	0 3														
40.400	192.089	2085	399.9(527)	1.3208	29.269	2163											
40.400	18.395	1146	148.9(276)	1.3668	29.268	1631	2.173	3545	1.810	1.07804	33.976	0.1231	4323	59.384	127.2		
INLET DNNRSK		7	0 4														
40.400	119.397	2085	399.9(527)	1.3208	29.269	2163											
40.400	98.709	1990	373.6(501)	1.3241	29.269	2116	0.542	1148	1.843	1.07804	33.976	0.1231	4323	19.227	127.2		
COMBUSTOR	0	8	1 4														
40.410	192.019	2085	399.9(527)	1.3208	29.269	2163											
40.410	21.741	1198	162.2(290)	1.3634	29.268	1666	2.071	3449	1.810	1.18570	33.976	0.1119	4265	63.557	125.5		
COMBUSTOR	0	9	2 4														
41.288	160.774	2076	397.6(525)	1.3211	29.269	2159											
41.288	25.263	1301	188.6(316)	1.3570	29.268	1732	1.868	3234	1.821	1.18963	33.976	0.1115	4137	59.793	121.8		
COMBUSTOR	0	10	3 4														
41.353	158.615	2076	397.4(525)	1.3211	29.269	2158											
41.353	25.542	1309	190.6(318)	1.3565	29.268	1737	1.852	3217	1.822	1.18906	33.976	0.1116	4127	59.443	121.5		
COMBUSTOR	0	11	4 4														
41.500	154.336	2074	397.0(524)	1.3212	29.269	2158											
41.500	26.257	1327	195.2(323)	1.3554	29.268	1748	1.818	3177	1.824	1.19093	33.976	0.1114	4104	58.800	120.8		
COMBUSTOR	0	12	5 5														
42.460	137.388	2063	393.9(521)	1.3216	29.269	2152											
42.460	28.777	1393	212.4(340)	1.3514	29.268	1788	1.685	3013	1.830	1.17916	33.976	0.1125	4011	55.214	118.1		
COMBUSTOR	0	13	6 4														
44.073	126.300	2043	388.3(516)	1.3223	29.269	2142											
44.073	29.119	1413	217.7(345)	1.3502	29.268	1800	1.623	2921	1.833	1.14014	33.976	0.1163	3952	51.757	116.3		
COMBUSTOR	0	14	7 4														
44.310	125.081	2040	387.5(515)	1.3224	29.269	2141											
44.310	29.266	1416	218.6(346)	1.3500	29.268	1802	1.613	2907	1.833	1.13763	33.976	0.1166	3944	51.391	116.1		
COMBUSTOR	0	15	8 4														
44.788	122.451	2035	386.0(513)	1.3225	29.269	2138											
44.788	29.665	1425	220.9(348)	1.3495	29.268	1808	1.590	2874	1.834	1.13295	33.976	0.1171	3925	50.601	115.5		
COMBUSTOR	0	16	9 4														
44.800	122.390	2035	386.0(513)	1.3225	29.269	2138											
44.800	29.669	1425	221.0(348)	1.3495	29.268	1808	1.590	2873	1.834	1.13274	33.976	0.1171	3924	50.581	115.5		
COMBUSTOR	0	17	10 4														
46.260	115.659	2022	382.4(510)	1.3230	29.269	2132											
46.260	27.616	1410	217.0(344)	1.3504	29.268	1799	1.599	2877	1.836	1.06691	33.976	0.1243	3917	47.696	115.3		
COMBUSTOR	0	18	11 4														
47.310	113.767	2014	380.2(507)	1.3233	29.269	2128											
47.310	23.999	1560	203.8(331)	1.3534	29.268	1768	1.680	2970	1.836	0.99292	33.976	0.1336	3958	45.833	116.5		

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.313	113.785	2014	380.1(507)	1.3233	29.269	2128											
47.313	24.015	1360	203.9(331)	1.3534	29.268	1768	1.680	2970	1.836	0.99332	33.976	0.1335	3958	45.845	116.5		
COMBUSTOR	0	20	13 5														
48.110	113.226	2008	378.4(586)	1.3235	29.269	2124											
48.110	20.809	1307	190.2(318)	1.3566	29.268	1736	1.768	3069	1.836	0.92537	33.976	0.1434	4005	44.136	117.9		
COMBUSTOR	0	21	14 4														
48.763	111.082	2003	377.1(504)	1.3237	29.269	2122											
48.763	18.047	1262	178.6(306)	1.3594	29.268	1707	1.846	3152	1.836	0.85361	33.976	0.1554	4046	41.808	119.1		
COMBUSTOR	0	22	15 4														
49.293	108.687	1999	378.0(503)	1.3238	29.269	2120											
49.293	16.169	1230	170.4(298)	1.3614	29.268	1687	1.901	3207	1.837	0.79833	33.976	0.1662	4075	39.789	119.9		
COMBUSTOR	0	23	16 6														
50.703	111.286	1987	372.7(500)	1.3242	29.269	2114											
50.703	11.790	1116	141.5(269)	1.3687	29.268	1611	2.111	3402	1.834	0.68040	33.976	0.1950	4181	35.968	123.1		
COMBUSTOR	0	24	17 202														
52.803	81.650	2045	365.4(518)	1.3218	29.188	2145											
52.803	29.100	1582	238.6(392)	1.3403	29.188	1901	1.325	2519	1.871	0.55963	34.096	0.2379	4442	21.908	130.3	0.01	1.00
COMBUSTOR	0	25	18 200														
53.303	78.456	2039	363.9(517)	1.3216	29.188	2143											
53.303	31.150	1622	249.2(402)	1.3384	29.188	1923	1.246	2396	1.873	0.53676	34.096	0.2480	4517	19.984	132.5	0.01	1.00
COMBUSTOR	0	26	19 4														
54.043	54.602	2877	381.0(813)	1.2860	27.502	2586											
54.043	32.498	2559	279.2(713)	1.2971	27.502	2450	0.921	2259	2.121	0.51012	34.350	0.2629	4598	17.893	133.9	0.18	0.73
COMBUSTOR	0	27	20 2														
54.053	54.583	2879	381.0(814)	1.2859	27.504	2587											
54.053	32.516	2561	279.3(714)	1.2970	27.505	2450	0.921	2256	2.122	0.50974	34.350	0.2631	4600	17.870	133.9	0.18	0.74
COMBUSTOR	0	28	21 4														
54.813	53.377	3009	378.6(883)	1.2794	27.662	2630											
54.813	33.900	2721	288.2(762)	1.2896	27.663	2511	0.861	2161	2.131	0.48203	34.350	0.2782	4723	16.192	137.5	0.18	0.84
COMBUSTOR	0	29	22 4														
55.760	52.064	3184	375.3(906)	1.2703	27.880	2686											
55.760	34.474	2913	285.8(820)	1.2803	27.882	2579	0.821	2117	2.141	0.45194	34.350	0.2967	4880	14.866	142.1	0.18	0.99
COMBUSTOR	0	30	23 4														
56.228	48.197	3503	390.6(1087)	1.2555	25.997	2900											
56.228	34.758	3275	306.0(1007)	1.2647	26.002	2814	0.731	2058	2.317	0.36751	34.604	0.3676	5486	11.755	158.5	0.35	0.72
COMBUSTOR	0	31	24 2														
56.238	48.182	3505	390.6(1087)	1.2554	25.998	2901											
56.238	34.764	3277	306.1(1007)	1.2646	26.003	2815	0.731	2057	2.317	0.36718	34.604	0.3679	5488	11.737	158.6	0.35	0.72
COMBUSTOR	0	32	25 3														
56.293	47.959	3561	390.4(1106)	1.2520	26.064	2916											
56.293	34.123	3323	301.2(1022)	1.2619	26.071	2828	0.747	2114	2.320	0.36615	34.604	0.3690	5498	12.026	158.9	0.35	0.75
COMBUSTOR	0	33	26 3														
56.433	47.857	3584	390.0(1113)	1.2506	26.092	2922											
56.433	34.166	3347	301.1(1030)	1.2605	26.099	2835	0.744	2109	2.321	0.36358	34.604	0.3716	5520	11.917	159.5	0.35	0.76
COMBUSTOR	0	34	27 21														
56.513	46.929	4067	388.7(1276)	1.2185	26.678	3039											
56.513	34.930	3857	302.6(1200)	1.2285	26.700	2970	0.703	2087	2.340	0.36772	34.604	0.3674	5532	11.929	159.9	0.35	1.00
COMBUSTOR	0	35	28 21														
56.793	47.326	4065	388.7(1275)	1.2187	26.679	3039											
56.793	35.100	3852	300.6(1199)	1.2288	26.701	2969	0.707	2099	2.339	0.36657	34.604	0.3686	5571	11.959	161.0	0.35	1.00
COMBUSTOR	0	36	29 21														
57.019	47.611	4063	389.9(1274)	1.2189	26.679	3038											
57.019	35.159	3847	298.6(1197)	1.2291	26.701	2967	0.712	2113	2.338	0.36569	34.604	0.3695	5600	12.010	161.8	0.35	1.00
COMBUSTOR	0	37	30 21														
57.743	47.993	4057	385.2(1272)	1.2193	26.680	3036											
57.743	35.350	3839	295.3(1194)	1.2295	26.702	2965	0.715	2120	2.337	0.36001	34.604	0.3753	5678	11.863	164.1	0.35	1.00

READING = 0093 BLOCK = 93 TIME = 182.629 MACH 5.2 PT = 417.249 TT = 2140.8 PAGE 3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
58.763	48.501	4049	381.4(1269)	1.2198	26.682	3034											
58.763	35.250	3821	287.9(1188)	1.2305	26.704	2959	0.731	2163	2.335	0.35772	34.604	0.3777	5736	12.022	165.8	0.35	1.00
COMBUSTOR	0	39	32 200														
60.773	49.573	4032	374.0(1263)	1.2209	26.684	3028											
60.773	32.625	3734	253.1(1157)	1.2349	26.711	2930	0.839	2459	2.332	0.37017	34.604	0.3650	5695	14.148	164.6	0.35	1.00
COMBUSTOR	0	40	33 200														
62.193	50.420	4020	368.9(1259)	1.2217	26.686	3025											
62.193	30.506	3663	225.3(1132)	1.2383	26.716	2906	0.923	2681	2.329	0.38020	34.604	0.3553	5660	15.839	163.6	0.35	1.00
SONIC THROAT		41	34 200														
62.193	55.328	4021	368.9(1259)	1.2223	26.688	3026											
62.193	30.806	3899	200.2(1109)	1.2416	26.720	2884	1.008	2906	2.323	0.38020	34.604	0.3553	5902	17.168	170.5	0.35	1.00
COMBUSTOR	REGEN	42	35 5														
62.193	50.420	4152	426.5(1306)	1.2142	26.665	3066											
62.193	29.555	3773	268.9(1170)	1.2323	26.707	2942	0.955	2808	2.344	0.38020	34.604	0.3553	5710	16.592	165.0	0.35	1.00
NOZZLE	AE	43	36 4														
87.269	50.420	4020	368.9(1249)	1.2217	26.686	3025											
87.269	1.149	1792	-420.7(505)	1.3138	26.739	2092	3.004	6286	2.329	0.06975	34.604	1.9371	7331	6.813	211.8	0.35	1.00
NOZZLE	PO	44	37 4														
87.269	50.420	4020	368.9(1249)	1.2217	26.686	3025											
87.269	0.622	1544	-494.6(429)	1.3265	26.739	1952	3.372	6581	2.329	0.04588	34.604	2.9450	7547	4.692	218.1	0.35	1.00
NOZZLE	AE REGEN	45	38 4														
87.269	50.420	4152	426.5(1306)	1.2142	26.665	3066											
87.269	1.193	1891	-389.6(536)	1.3094	26.739	2146	2.978	6390	2.344	0.06974	34.604	1.9372	7465	6.926	215.7	0.35	1.00
NOZZLE	PO REGEN	46	39 4														
87.269	50.420	4152	426.5(1306)	1.2142	26.665	3066											
87.269	0.622	1618	-474.4(451)	1.3225	26.739	1994	3.366	6714	2.344	0.04468	34.604	3.0239	7703	4.662	222.6	0.35	1.00
FICTIVE	COMBUSTR	68	61 0														
62.193	192.089	4036	368.9(1264)	1.2285	26.704	3038											
62.193	0.622	1099	-627.2(298)	1.3542	26.739	1663	4.244	7060	2.230	0.06917	34.604	1.9532	7904	7.589	228.4	0.35	1.00
FICTIVE	NOZZLE	69	62 0														
87.269	27.971	3913	327.2(1221)	1.2238	26.691	2987											
87.269	1.508	2122	-316.0(609)	1.2998	26.739	2265	2.505	5673	2.363	0.06975	34.604	1.9371	6850	6.149	198.0	0.35	1.00

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.395E 00	0.000	-5.233E-01	0.000	0.000	0.000	2.470E-02	2.242E 00	3.343E-03	0.000	0.000
1.836E 01	1.395E 00	0.000	-4.639E 01	0.000	0.000	0.000	1.634E 02	2.242E 00	3.343E-03	0.000	0.000
3.070E 01	2.540E 00	0.000	-2.059E 02	0.000	0.000	0.000	5.053E 02	4.083E 00	6.087E-03	0.000	0.000
3.508E 01	4.217E 00	0.000	-4.249E 02	0.000	0.000	0.000	6.804E 02	6.779E 00	1.011E-02	0.000	0.000
3.517E 01	4.250E 00	6.053E 00	-4.917E 02	0.000	0.000	0.000	6.844E 02	6.831E 00	1.019E-02	9.729E 00	1.451E-02
3.518E 01	4.252E 00	6.029E 00	-4.917E 02	0.000	0.000	0.000	6.847E 02	6.834E 00	1.019E-02	9.691E 00	1.445E-02
3.555E 01	4.385E 00	4.670E 00	-5.000E 02	0.000	0.000	0.000	7.221E 02	7.048E 00	1.051E-02	7.346E 00	1.095E-02
3.584E 01	4.379E 00	3.425E 00	-5.126E 02	-2.474E 02	-2.474E 02	0.000	7.519E 02	7.039E 00	1.050E-02	5.505E 00	8.209E-03
3.606E 01	4.375E 00	4.799E 00	-5.222E 02	-2.505E 02	-2.505E 02	0.000	7.741E 02	7.032E 00	1.049E-02	7.713E 00	1.150E-02
3.648E 01	4.790E 00	7.456E 00	-5.358E 02	-2.567E 02	-2.567E 02	0.000	8.178E 02	7.699E 00	1.148E-02	1.198E 01	1.787E-02
3.701E 01	4.545E 00	1.081E 01	-5.503E 02	-3.071E 02	-2.648E 02	-4.230E 01	8.737E 02	7.305E 00	1.089E-02	1.737E 01	2.591E-02
3.730E 01	5.913E 00	1.266E 01	-5.589E 02	-3.248E 02	-2.695E 02	-5.536E 01	9.052E 02	9.503E 00	1.417E-02	2.035E 01	3.035E-02
3.803E 01	9.307E 00	1.526E 01	-6.136E 02	-3.689E 02	-2.818E 02	-8.711E 01	9.847E 02	1.496E 01	2.231E-02	2.452E 01	3.656E-02
3.832E 01	1.237E 01	1.630E 01	-6.413E 02	-3.871E 02	-2.873E 02	-9.981E 01	1.017E 03	1.988E 01	2.964E-02	2.620E 01	3.907E-02
3.875E 01	1.683E 01	1.646E 01	-6.915E 02	-4.146E 02	-2.963E 02	-1.183E 02	1.066E 03	2.706E 01	4.034E-02	2.645E 01	3.945E-02
3.879E 01	1.728E 01	1.647E 01	-6.965E 02	-4.174E 02	-2.973E 02	-1.201E 02	1.071E 03	2.778E 01	4.142E-02	2.648E 01	3.948E-02
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3.979E 01	1.979E 01	5.150E 00	-7.840E 02	-4.873E 02	-3.247E 02	-1.626E 02	1.186E 03	3.181E 01	4.744E-02	8.278E 00	1.234E-02
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4.040E 01	2.380E 01	5.101E 00	-8.539E 02	-5.332E 02	-3.457E 02	-1.875E 02	1.257E 03	3.826E 01	5.704E-02	8.199E 00	1.222E-02
4.041E 01	2.388E 01	5.100E 00	-8.550E 02	-5.340E 02	-3.461E 02	-1.879E 02	1.258E 03	3.838E 01	5.723E-02	8.197E 00	1.222E-02
4.129E 01	3.086E 01	5.029E 00	-9.690E 02	-6.128E 02	-3.813E 02	-2.315E 02	1.362E 03	4.961E 01	7.397E-02	8.083E 00	1.205E-02
4.135E 01	3.138E 01	5.023E 00	-9.779E 02	-6.194E 02	-3.841E 02	-2.353E 02	1.370E 03	5.044E 01	7.521E-02	8.074E 00	1.204E-02
4.150E 01	3.255E 01	5.746E 00	-9.982E 02	-6.347E 02	-3.907E 02	-2.440E 02	1.387E 03	5.232E 01	7.801E-02	9.236E 00	1.377E-02
4.246E 01	1.942E 01	1.047E 01	-1.076E 03	-7.408E 02	-4.365E 02	-3.042E 02	1.502E 03	3.122E 01	4.655E-02	1.682E 01	2.508E-02
4.407E 01	2.475E 01	1.839E 01	-1.109E 03	-9.307E 02	-5.148E 02	-4.159E 02	1.697E 03	3.978E 01	5.932E-02	2.956E 01	4.408E-02
4.431E 01	2.553E 01	1.864E 01	-1.114E 03	-9.581E 02	-5.259E 02	-4.322E 02	1.726E 03	4.104E 01	6.119E-02	2.995E 01	4.467E-02
4.479E 01	2.711E 01	1.913E 01	-1.126E 03	-1.008E 03	-5.480E 02	-4.595E 02	1.785E 03	4.357E 01	6.497E-02	3.074E 01	4.584E-02
4.480E 01	2.715E 01	1.914E 01	-1.126E 03	-1.009E 03	-5.486E 02	-4.601E 02	1.786E 03	4.364E 01	6.507E-02	3.076E 01	4.587E-02
4.626E 01	2.142E 01	2.063E 01	-1.111E 03	-1.130E 03	-6.161E 02	-5.143E 02	1.965E 03	3.444E 01	5.135E-02	3.317E 01	4.945E-02
4.731E 01	1.731E 01	2.171E 01	-1.055E 03	-1.207E 03	-6.656E 02	-5.411E 02	2.096E 03	2.782E 01	4.148E-02	3.489E 01	5.203E-02
4.731E 01	1.728E 01	2.171E 01	-1.055E 03	-1.207E 03	-6.658E 02	-5.411E 02	2.096E 03	2.778E 01	4.142E-02	3.490E 01	5.204E-02
4.811E 01	1.035E 01	1.746E 01	-9.973E 02	-1.264E 03	-7.039E 02	-5.605E 02	2.195E 03	1.664E 01	2.481E-02	2.806E 01	4.183E-02
4.876E 01	1.397E 01	1.397E 01	-9.475E 02	-1.311E 03	-7.356E 02	-5.752E 02	2.277E 03	2.245E 01	3.348E-02	2.245E 01	3.348E-02
4.929E 01	1.114E 01	1.114E 01	-9.128E 02	-1.348E 03	-7.615E 02	-5.862E 02	2.343E 03	1.790E 01	2.669E-02	1.790E 01	2.669E-02
5.070E 01	2.166E 01	2.166E 01	-7.916E 02	-1.458E 03	-8.316E 02	-6.262E 02	2.521E 03	3.481E 01	5.190E-02	3.481E 01	5.190E-02
5.280E 01	2.910E 01	2.910E 01	-5.121E 02	-1.664E 03	-9.390E 02	-7.246E 02	2.787E 03	4.677E 01	6.974E-02	4.677E 01	6.974E-02
5.330E 01	3.115E 01	3.115E 01	-4.338E 02	-1.716E 03	-9.651E 02	-7.504E 02	2.851E 03	5.007E 01	7.466E-02	5.007E 01	7.466E-02
5.404E 01	3.250E 01	3.250E 01	-3.123E 02	-1.791E 03	-1.004E 03	-7.868E 02	2.946E 03	5.223E 01	7.789E-02	5.223E 01	7.789E-02
5.405E 01	3.252E 01	3.252E 01	-3.106E 02	-1.792E 03	-1.005E 03	-7.873E 02	2.947E 03	5.226E 01	7.793E-02	5.226E 01	7.793E-02
5.481E 01	3.390E 01	3.390E 01	-1.819E 02	-1.875E 03	-1.045E 03	-8.294E 02	3.044E 03	5.449E 01	8.125E-02	5.449E 01	8.125E-02
5.576E 01	3.447E 01	3.447E 01	-1.962E 01	-1.985E 03	-1.096E 03	-8.888E 02	3.166E 03	5.541E 01	8.262E-02	5.541E 01	8.262E-02
5.623E 01	3.476E 01	3.476E 01	5.884E 02	-2.040E 03	-1.119E 03	-9.209E 02	3.208E 03	5.587E 01	8.330E-02	5.587E 01	8.330E-02
5.624E 01	3.476E 01	3.476E 01	5.907E 02	-2.041E 03	-1.120E 03	-9.216E 02	3.209E 03	5.588E 01	8.332E-02	5.588E 01	8.332E-02
5.629E 01	3.345E 01	3.480E 01	6.006E 02	-2.047E 03	-1.122E 03	-9.255E 02	3.217E 03	5.376E 01	8.017E-02	5.593E 01	8.340E-02
5.643E 01	3.345E 01	3.488E 01	6.233E 02	-2.064E 03	-1.128E 03	-9.357E 02	3.234E 03	5.376E 01	8.017E-02	5.607E 01	8.360E-02
5.651E 01	3.493E 01	3.493E 01	6.373E 02	-2.073E 03	-1.131E 03	-9.417E 02	3.245E 03	5.614E 01	8.372E-02	5.614E 01	8.372E-02
5.679E 01	3.510E 01	3.510E 01	6.830E 02	-2.107E 03	-1.143E 03	-9.635E 02	3.280E 03	5.642E 01	8.412E-02	5.642E 01	8.412E-02
5.702E 01	3.516E 01	3.516E 01	7.172E 02	-2.135E 03	-1.153E 03	-9.822E 02	3.309E 03	5.651E 01	8.426E-02	5.651E 01	8.426E-02
5.774E 01	3.535E 01	3.535E 01	8.128E 02	-2.230E 03	-1.184E 03	-1.046E 03	3.402E 03	5.682E 01	8.472E-02	5.682E 01	8.472E-02
5.876E 01	3.525E 01	3.525E 01	8.945E 02	-2.361E 03	-1.228E 03	-1.133E 03	3.532E 03	5.666E 01	8.448E-02	5.666E 01	8.448E-02
6.077E 01	3.262E 01	3.262E 01	9.025E 02	-2.616E 03	-1.318E 03	-1.297E 03	3.790E 03	5.244E 01	7.819E-02	5.244E 01	7.819E-02
6.219E 01	3.051E 01	3.051E 01	9.025E 02	-2.793E 03	-1.388E 03	-1.405E 03	3.972E 03	4.903E 01	7.311E-02	4.903E 01	7.311E-02
6.466E 01	2.374E 01	2.374E 01	9.025E 02	-3.107E 03	-1.528E 03	-1.579E 03	4.289E 03	3.816E 01	5.690E-02	3.816E 01	5.690E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OR	CAWALL	P-IB/PSO	P-IB/PTO	P-OR/PSO	P-OB/PTO
6.503E 01	2.167E 01	2.271E 01	9.025E 02	-3.157E 03	-1.552E 03	-1.605E 03	4.337E 03	3.484E 01	5.195E-02	3.650E 01	5.443E-02
6.507E 01	2.167E 01	2.260E 01	9.025E 02	-3.162E 03	-1.554E 03	-1.608E 03	4.342E 03	3.484E 01	5.195E-02	3.632E 01	5.416E-02
6.527E 01	2.047E 01	2.205E 01	9.025E 02	-3.187E 03	-1.567E 03	-1.620E 03	4.368E 03	3.291E 01	4.907E-02	3.544E 01	5.285E-02
6.693E 01	1.050E 01	8.887E 00	1.075E 03	-3.371E 03	-1.655E 03	-1.716E 03	4.583E 03	1.688E 01	2.516E-02	1.429E 01	2.130E-02
6.760E 01	7.950E 00	9.007E 00	1.259E 03	-3.436E 03	-1.682E 03	-1.754E 03	4.665E 03	1.278E 01	1.905E-02	1.448E 01	2.159E-02
6.837E 01	5.020E 00	7.120E 00	1.458E 03	-3.508E 03	-1.709E 03	-1.799E 03	4.760E 03	8.069E 00	1.203E-02	1.144E 01	1.706E-02
6.909E 01	4.065E 00	5.355E 00	1.596E 03	-3.574E 03	-1.732E 03	-1.842E 03	4.848E 03	6.533E 00	9.741E-03	8.607E 00	1.283E-02
6.970E 01	3.255E 00	3.578E 00	1.684E 03	-3.625E 03	-1.749E 03	-1.876E 03	4.922E 03	5.232E 00	7.801E-03	5.751E 00	8.575E-03
7.065E 01	2.580E 00	8.100E-01	1.768E 03	-3.688E 03	-1.774E 03	-1.914E 03	5.036E 03	4.147E 00	6.184E-03	1.302E 00	1.941E-03
7.108E 01	2.275E 00	1.156E 00	1.794E 03	-3.711E 03	-1.784E 03	-1.927E 03	5.088E 03	3.657E 00	5.452E-03	1.857E 00	2.769E-03
7.261E 01	1.501E 00	2.385E 00	1.882E 03	-3.786E 03	-1.816E 03	-1.970E 03	5.273E 03	2.412E 00	3.597E-03	3.833E 00	5.716E-03
7.276E 01	1.425E 00	2.096E 00	1.890E 03	-3.793E 03	-1.819E 03	-1.974E 03	5.290E 03	2.290E 00	3.415E-03	3.369E 00	5.023E-03
7.351E 01	1.686E 00	6.500E-01	1.939E 03	-3.831E 03	-1.831E 03	-2.000E 03	5.374E 03	2.711E 00	4.042E-03	1.045E 00	1.558E-03
7.352E 01	1.688E 00	6.423E-01	1.940E 03	-3.832E 03	-1.832E 03	-2.000E 03	5.375E 03	2.713E 00	4.045E-03	1.032E 00	1.539E-03
7.484E 01	2.150E 00	0.000	1.981E 03	-3.903E 03	-1.851E 03	-2.053E 03	5.427E 03	3.456E 00	5.153E-03	0.000	0.000
7.769E 01	2.075E 00	0.000	2.065E 03	-4.153E 03	-1.881E 03	-2.272E 03	5.525E 03	3.335E 00	4.973E-03	0.000	0.000
8.159E 01	1.430E 00	0.000	2.140E 03	-4.180E 03	-1.907E 03	-2.272E 03	5.630E 03	2.298E 00	3.427E-03	0.000	0.000
8.440E 01	1.485E 00	0.000	2.173E 03	-4.200E 03	-1.927E 03	-2.272E 03	5.684E 03	2.387E 00	3.559E-03	0.000	0.000
8.726E 01	2.105E 00	0.000	2.216E 03	-4.235E 03	-1.963E 03	-2.272E 03	5.707E 03	3.383E 00	5.045E-03	0.000	0.000
8.727E 01	2.106E 00	0.000	2.216E 03	-4.235E 03	-1.963E 03	-2.272E 03	5.707E 03	3.386E 00	5.048E-03	0.000	0.000

READING = 0093 BLOCK = 93 TIME = 182.629 MACH 5.2 PT = 417.249 TT = 2140.8

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.157E 02	1.157E 02	2.204E-03	5.032E-02
4.041E 01	1.670E-01	1.159E 02	2.216E-03	5.293E-02
4.129E 01	1.454E 01	1.304E 02	2.327E-03	5.650E-02
4.135E 01	1.076E 00	1.315E 02	2.336E-03	5.674E-02
4.150E 01	2.430E 00	1.339E 02	2.354E-03	5.740E-02
4.246E 01	1.565E 01	1.496E 02	2.424E-03	5.901E-02
4.407E 01	2.547E 01	1.751E 02	2.455E-03	5.793E-02
4.431E 01	3.654E 00	1.787E 02	2.463E-03	5.801E-02
4.479E 01	7.355E 00	1.861E 02	2.482E-03	5.824E-02
4.480E 01	1.850E-01	1.862E 02	2.482E-03	5.824E-02
4.626E 01	2.190E 01	2.081E 02	2.486E-03	5.482E-02
4.731E 01	1.500E 01	2.231E 02	2.442E-03	4.982E-02
4.731E 01	4.267E-02	2.232E 02	2.442E-03	4.985E-02
4.811E 01	1.080E 01	2.340E 02	2.394E-03	4.522E-02
4.876E 01	8.330E 00	2.423E 02	2.351E-03	4.075E-02
4.929E 01	6.335E 00	2.487E 02	2.320E-03	3.746E-02
5.070E 01	1.519E 01	2.638E 02	2.196E-03	2.981E-02
5.280E 01	1.782E 01	2.817E 02	2.430E-03	4.606E-02
5.330E 01	3.283E 00	2.850E 02	2.489E-03	4.587E-02
5.404E 01	4.813E 00	2.898E 02	2.886E-03	4.007E-02
5.405E 01	6.733E-02	2.898E 02	3.002E-03	3.799E-02
5.481E 01	4.972E 00	2.948E 02	2.995E-03	3.760E-02
5.576E 01	5.690E 00	3.005E 02	3.026E-03	3.620E-02
5.623E 01	1.744E 00	3.022E 02	3.184E-03	3.218E-02
5.624E 01	4.757E-02	3.023E 02	3.163E-03	3.249E-02
5.629E 01	2.642E-01	3.025E 02	3.150E-03	3.274E-02
5.643E 01	6.718E-01	3.032E 02	3.165E-03	3.240E-02
5.651E 01	3.950E-01	3.036E 02	3.308E-03	3.048E-02
5.679E 01	1.407E 00	3.050E 02	3.294E-03	3.070E-02
5.702E 01	1.136E 00	3.062E 02	3.283E-03	3.088E-02
5.774E 01	3.619E 00	3.098E 02	3.263E-03	3.102E-02
5.876E 01	5.077E 00	3.149E 02	3.241E-03	3.144E-02
6.077E 01	1.082E 01	3.257E 02	3.172E-03	3.303E-02
6.219E 01	8.604E 00	3.343E 02	3.128E-03	3.374E-02
6.466E 01	1.736E 01	3.703E 02	3.134E-03	3.324E-02
6.503E 01	2.937E 00	3.733E 02	3.115E-03	3.251E-02
6.507E 01	3.158E-01	3.736E 02	3.115E-03	3.248E-02
6.527E 01	1.586E 00	3.752E 02	3.106E-03	3.202E-02
6.693E 01	1.273E 01	3.879E 02	2.947E-03	2.114E-02
6.760E 01	4.467E 00	3.924E 02	2.922E-03	1.940E-02
6.837E 01	4.719E 00	3.971E 02	2.868E-03	1.552E-02
6.909E 01	3.832E 00	4.009E 02	2.825E-03	1.299E-02
6.970E 01	2.790E 00	4.037E 02	2.778E-03	1.032E-02
7.065E 01	3.270E 00	4.070E 02	2.674E-03	6.107E-03
7.108E 01	1.192E 00	4.082E 02	2.674E-03	6.157E-03
7.261E 01	4.400E 00	4.126E 02	2.688E-03	6.755E-03
7.276E 01	4.144E-01	4.130E 02	2.672E-03	6.265E-03
7.351E 01	1.741E 00	4.147E 02	2.607E-03	4.561E-03
7.352E 01	2.903E-03	4.147E 02	2.607E-03	4.551E-03
7.484E 01	1.142E 00	4.159E 02	2.694E-03	7.265E-03
7.769E 01	2.545E 00	4.184E 02	2.677E-03	7.040E-03
8.159E 01	2.398E 00	4.208E 02	2.606E-03	5.263E-03
8.440E 01	1.112E 00	4.219E 02	2.599E-03	5.392E-03
8.726E 01	5.216E-01	4.224E 02	2.641E-03	7.009E-03
8.727E 01	0.000	4.224E 02	2.641E-03	7.012E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1614.	(LBF)
MEASURED THRUST	1813.	(LBF)
CALCULATED SPECIFIC IMPULSE	3078.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3457.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5533	
MEASURED THRUST COEFFICIENT	0.6215	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	6976.	(LBF)
NET THRUST	1739.	(LBF)
SPECIFIC IMPULSE	3317.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5964	

MOMENTUM AND FORCES

INLET FRICTION DRAG	115.7	(LBF)
INLET MOMENTUM CHANGE	-969.7	(LBF)
COMBUSTOR FRICTION DRAG	218.6	(LBF)
COMBUSTOR STRUT DRAG	108.64	(LBF)
COMBUSTOR MOMENTUM CHANGE	1393.	(LBF)
NOZZLE FRICTION DRAG	69.48	(LBF)
NOZZLE STRUT DRAG	53.56	(LBF)
NOZZLE MOMENTUM CHANGE	1191.	(LBF)
NOZZLE PRESSURE INTEGRAL	1314.	(LBF)
EXTERNAL FRICTION DRAG	51.28	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1291.	(LBF)
TOTAL EXTERNAL DRAG	-1342.	(LBF)
TOTAL STRUT DRAG	162.20	(LBF)
CAVITY FORCE	-1470.	(LBF)
CALCULATED LOAD CELL FORCE	-1199.	(LBF)
MEASURED LOAD CELL FORCE	-1000.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -142.7,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2929	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.177	(IN)
NOZZLE SHROUD TRAILING EDGE	73.517	(IN)
NOZZLE PLUG TRAILING EDGE	87.269	(IN)
STRUT LEADING EDGE	56.433	(IN)
STRUT TRAILING EDGE	65.033	(IN)
COMBUSTOR EXIT	62.193	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8648	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2812	
DELTA PT2	0.1408	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4604	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2862	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9069	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9188	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9255	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8918	
ENTHALPY AT P0 - SUPERSONIC	-22.12	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-6.77	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0154
EQUIVALENCE RATIO	0.353
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.2625
COMBUSTOR EFFECTIVENESS	0.9015
INJECTOR DISCHARGE COEFFICIENTS	0.7743, 0.6381,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9345
NOZZLE COEFFICIENT - CT	0.8667
PROCESS EFFICIENCY	0.8895
KINETIC ENERGY EFFICIENCY	0.8552

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.278	
1C	44.300	
2A	48.753	
2C	46.250	
3A	54.043	E
3B	56.228	E
4	44.778	

Reading 94

t = 134.14 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

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               P       T       H          GAMMA  MOLWT SONV  MACH  VEL    S      W/A       W     A/AC   MOMTM    Q     IVAC  PHI  ETAC
WIND TUNNEL            1    0  4
 0.000   426.999 2200   435.7( 565) 1.3194 28.866 2236
 0.000     0.602  370   -40.3(  89) 1.3982 28.866  944 5.170 4880 1.775 0.14823 32.900 0.8666   5124 11.242 155.7
SPIKE TIP NS           2    0  6
 0.600    21.787 2200   435.7( 565) 1.3195 28.866 2236
 0.600    19.720 2147   420.6( 550) 1.3213 28.866 2211 0.391  864 1.980 0.14623 32.900 0.8666   5261  1.990 159.9
WIND TUNNEL            3    0  0
 0.000   426.999 2200   435.7( 565) 1.3194 28.866 2236
 0.000     0.631  375   -39.0(  90) 1.3983 28.866  950 5.128 4874 1.775 0.15318 34.001 0.8666   5291 11.603 155.6
SPIKE TIP NS           4    0  0
 0.600    21.787 2200   435.7( 565) 1.3195 28.866 2236
 0.600    19.559 2143   419.6( 549) 1.3214 28.866 2209 0.407  899 1.980 0.15318 34.001 0.8666   5291  2.139 155.6
INLET THROAT           5    0  4
40.400   186.606 2164   425.5( 554) 1.3207 28.866 2219
40.400    21.805 1254   178.0( 307) 1.3635 28.866 1716 2.051 3519 1.828 1.14354 34.001 0.1123   4346 64.632 127.8
INLET UPNRSK           6    0  2
40.400   186.606 2164   425.5( 554) 1.3207 28.866 2219
40.400    19.528 1217   168.6( 298) 1.3657 28.866 1692 2.119 3585 1.828 1.07435 34.001 0.1236   4407 59.857 129.6
INLET DNNRSK           7    0  4
40.400   120.867 2164   425.5( 554) 1.3207 28.866 2219
40.400    99.369 2063   397.0( 526) 1.3242 28.866 2169 0.550 1194 1.858 1.07435 34.001 0.1236   4407 19.936 129.6
COMBUSTOR         0    8    1  5
40.410   186.425 2164   425.5( 554) 1.3207 28.866 2219
40.410    23.147 1274   183.3( 313) 1.3622 28.866 1729 2.014 3481 1.828 1.18164 34.001 0.1123   4345 63.929 127.8
COMBUSTOR         0    9    2  4
41.268   157.388 2157   423.5( 553) 1.3209 28.866 2215
41.268    26.917 1382   211.3( 341) 1.3556 28.866 1796 1.814 3259 1.839 1.18602 34.001 0.1119   4215 60.062 124.0
COMBUSTOR         0   10    3  4
41.333   155.328 2157   423.4( 552) 1.3209 28.866 2215
41.333    27.229 1390   213.6( 343) 1.3551 28.866 1801
                                                        1.799 3240 1.839 1.18556 34.001 0.1120   4205 59.696 123.7
COMBUSTOR         0   11    4  4
41.500   150.708 2155   423.0( 552) 1.3210 28.866 2214
41.500    28.121 1412   219.4( 349) 1.3538 28.866 1815 1.759 3192 1.841 1.18743 34.001 0.1118   4178 58.900 122.9
COMBUSTOR         0   12    5  5
42.460   134.170 2146   420.4( 549) 1.3213 28.866 2210
42.460    31.048 1487   239.1( 368) 1.3495 28.866 1859 1.620 3012 1.848 1.17509 34.001 0.1130   4081 55.000 120.0
COMBUSTOR         0   13    6  5
44.053   122.914 2130   415.8( 545) 1.3219 28.866 2202
44.053    31.938 1519   247.8( 377) 1.3477 28.866 1878 1.544 2899 1.852 1.13819 34.001 0.1166   4017 51.274 118.2
COMBUSTOR         0   14    7  5
44.310   121.524 2127   415.0( 544) 1.3220 28.866 2201
44.310    32.190 1525   249.3( 379) 1.3474 28.866 1881 1.531 2880 1.852 1.13537 34.001 0.1169   4007 50.808 117.9
COMBUSTOR         0   15    8  4
44.768   118.939 2123   413.9( 543) 1.3221 28.866 2199
44.768    32.736 1537   252.5( 382) 1.3467 28.866 1888 1.505 2841 1.853 1.13051 34.001 0.1174   3987 49.921 117.3
COMBUSTOR         0   16    9  4
44.800   118.748 2123   413.8( 543) 1.3221 28.866 2199
44.800    32.786 1538   252.8( 382) 1.3466 28.866 1889 1.503 2838 1.853 1.13024 34.001 0.1175   3986 49.855 117.2
COMBUSTOR         0   17   10  5
46.260   111.526 2113   411.1( 540) 1.3225 28.866 2194
46.260    30.611 1531   250.9( 380) 1.3470 28.866 1885 1.502 2831 1.856 1.06438 34.001 0.1247   3976 46.829 116.9
COMBUSTOR         0   18   11  4
47.293   108.889 2107   409.5( 538) 1.3227 28.866 2191
47.293    26.903 1488   238.3( 368) 1.3497 28.866 1857 1.576 2926 1.857 0.99275 34.001 0.1337   4015 45.149 118.1
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	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	PORTH	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.310	108.839	2107	409.4(538)	1.3227	28.866	2191											
47.310	26.831	1482	237.9(367)	1.3497	28.866	1856	1.576	2930	1.857	0.99069	34.001	0.1340	4017	45.104	118.1		
COMBUSTOR	0	20	13 5														
48.110	107.488	2103	408.3(537)	1.3228	28.866	2189											
48.110	23.304	1431	224.2(353)	1.3527	28.866	1826	1.662	3035	1.858	0.92345	34.001	0.1438	4065	43.549	119.6		
COMBUSTOR	0	21	14 4														
48.743	104.893	2100	407.4(536)	1.3229	28.866	2187											
48.743	20.319	1367	212.7(342)	1.3553	28.866	1799	1.735	3121	1.859	0.85422	34.001	0.1554	4107	41.431	120.6		
COMBUSTOR	0	22	15 5														
49.273	102.105	2097	406.7(536)	1.3230	28.866	2186											
49.273	18.229	1356	204.5(334)	1.3572	28.866	1780	1.767	3180	1.860	0.79890	34.001	0.1662	4137	39.486	121.7		
COMBUSTOR	0	23	16 4														
50.683	95.837	2091	404.7(534)	1.3233	28.866	2183											
50.683	14.159	1285	186.1(315)	1.3615	28.866	1736											
							1.905	3308	1.864	0.68088	34.001	0.1950	4202	34.999	123.6		
COMBUSTOR	0	24	17 5														
52.783	88.497	2082	402.2(531)	1.3236	28.866	2178											
52.783	10.458	1205	165.5(295)	1.3665	28.866	1684	2.044	3442	1.868	0.55806	34.001	0.2379	4274	29.850	125.7		
COMBUSTOR	0	25	18 5														
53.283	86.703	2080	401.8(531)	1.3236	28.866	2178											
53.283	9.856	1191	162.0(291)	1.3674	28.866	1675	2.068	3464	1.869	0.53526	34.001	0.2480	4286	28.812	126.1		
COMBUSTOR	0	26	19 5														
54.033	84.160	2078	401.1(530)	1.3237	28.866	2176											
54.033	9.071	1173	157.3(287)	1.3685	28.866	1663	2.101	3493	1.871	0.50455	34.001	0.2631	4302	27.387	126.5		
COMBUSTOR	0	27	20 5														
54.793	81.753	2076	400.5(530)	1.3238	28.866	2175											
54.793	8.395	1157	153.1(282)	1.3696	28.866	1652	2.130	3519	1.873	0.47713	34.001	0.2782	4317	26.090	127.0		
COMBUSTOR	0	28	21 5														
55.760	79.036	2073	399.8(529)	1.3239	28.866	2174											
55.760	7.665	1137	148.2(277)	1.3708	28.866	1639	2.165	3548	1.875	0.44676	34.001	0.2971	4333	24.636	127.4		
COMBUSTOR	0	29	22 4														
56.218	68.488	2072	399.5(529)	1.3239	28.866	2174											
56.218	5.877	1100	138.6(268)	1.3731	28.866	1613	2.241	3613	1.885	0.36078	34.001	0.3679	4372	20.258	128.6		
COMBUSTOR	0	30	23 5														
56.273	68.436	2072	399.5(529)	1.3239	28.866	2174											
56.273	5.852	1098	138.3(268)	1.3732	28.866	1612	2.243	3615	1.885	0.35976	34.001	0.3690	4373	20.211	128.6		
COMBUSTOR	0	31	24 5														
56.413	68.274	2072	399.4(528)	1.3239	28.866	2173											
56.413	5.791	1096	137.7(267)	1.3734	28.866	1610	2.248	3619	1.885	0.35724	34.001	0.3716	4375	20.092	128.7		
COMBUSTOR	0	32	25 4														
56.493	69.224	2071	399.3(528)	1.3239	28.866	2173											
56.493	5.844	1094	137.3(267)	1.3735	28.866	1609	2.251	3621	1.884	0.36124	34.001	0.3675	4377	20.329	128.7		
COMBUSTOR	0	33	26 4														
56.773	69.574	2071	399.2(528)	1.3240	28.866	2173											
56.773	5.787	1090	136.1(265)	1.3738	28.866	1606	2.260	3628	1.883	0.35998	34.001	0.3688	4381	20.299	128.8		
COMBUSTOR	0	34	27 4														
56.999	69.883	2070	399.0(528)	1.3240	28.866	2173											
56.999	5.751	1086	135.2(264)	1.3740	28.866	1603	2.266	3634	1.883	0.35937	34.001	0.3694	4384	20.293	128.9		
COMBUSTOR	0	35	28 4														
57.723	69.875	2069	398.7(528)	1.3240	28.866	2172											
57.723	5.595	1077	133.0(262)	1.3745	28.866	1597	2.283	3646	1.883	0.35374	34.001	0.3753	4391	20.045	129.1		
COMBUSTOR	0	36	29 4														
58.743	70.054	2067	398.2(527)	1.3241	28.866	2171											
58.743	5.520	1072	131.5(261)	1.3749	28.866	1593	2.293	3653	1.882	0.35148	34.001	0.3777	4394	19.953	129.2		
COMBUSTOR	0	37	30 5														
60.753	71.046	2065	397.5(527)	1.3242	28.866	2170											
60.753	5.786	1080	133.6(263)	1.3743	28.866	1599											
							2.273	3634	1.881	0.36371	34.001	0.3650	4381	20.539	128.8		

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READING = 0094  BLOCK =  33  TIME = 134.142  MACH  5.2  PI = 426.999  TI = 2700.0                                        PAGE  3

                 P       T      H              GAMMA  MOLWT SONV  MACH   VEL    S       W/A       W      A/AC    MOMTM    G      IVAL  PHI  ETAC
COMBUSTOR          0   38   31    5
62.173      71.789 2064   397.2( 526) 1.3242 28.666 2170
62.173       6.008 1087   135.5( 265) 1.3739 28.666 1604 2.256 3619 1.880 0.57357 34.001 0.3553   4371 21.008 126.6
NOZZLE  AE           39   32    4
87.249      71.789 2064   397.2( 526) 1.3242 28.866 2170
87.249       0.422  516    -5.1( 124) 1.3989 28.866 1115 4.024 4486 1.880 0.06853 34.001 1.9371   4950  4.776 145.6
NOZZLE  PO           40   33    4
87.249      71.789 2064   397.2( 526) 1.3242 28.666 2170
87.249       0.631  579    10.1( 139) 1.3979 28.866 1180 3.729 4401 1.880 0.08966 34.001 1.4806   4890  6.132 143.6
FICTIVE COMBUSTR   62   55    0
62.173     186.606 2064   397.2( 526) 1.3242 28.866 2170
62.173       0.631  441   -23.2( 106) 1.3991 28.866 1030 4.451 4586 1.614 0.12270 34.001 1.0619   5022  6.745 147.7
FICTIVE NOZZLE     63   56    0
87.249      52.143 2053   394.1( 523) 1.3246 28.866 2164
87.249       0.492  587    12.1( 141) 1.3978 28.866 1189 3.678 4372 1.901 0.06853 34.001 1.9371   4864  4.656 143.1
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XABS	P-IB	P-OB	POA	GOA	G-IB	G-OB	QAWALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PIO
6.981E-01	1.450E 00	0.000	-5.331E-01	0.000	0.000	0.000	2.470E-02	2.296E 00	3.396E-03	0.000	0.000
1.836E 01	1.450E 00	0.000	-4.821E 01	0.000	0.000	0.000	1.854E 02	2.296E 00	3.396E-03	0.000	0.000
3.070E 01	2.645E 00	0.000	-2.142E 02	0.000	0.000	0.000	5.055E 02	4.192E 00	6.194E-03	0.000	0.000
3.508E 01	4.380E 00	0.000	-4.418E 02	0.000	0.000	0.000	6.804E 02	6.942E 00	1.026E-02	0.000	0.000
3.515E 01	4.397E 00	6.191E 00	-5.066E 02	0.000	0.000	0.000	6.836E 02	6.968E 00	1.030E-02	9.812E 00	1.450E-02
3.516E 01	4.398E 00	6.170E 00	-5.087E 02	0.000	0.000	0.000	6.838E 02	6.970E 00	1.030E-02	9.779E 00	1.445E-02
3.555E 01	4.490E 00	4.816E 00	-5.175E 02	0.000	0.000	0.000	7.232E 02	7.116E 00	1.052E-02	7.632E 00	1.128E-02
3.582E 01	4.511E 00	3.875E 00	-5.269E 02	-1.193E 02	-1.193E 02	0.000	7.510E 02	7.150E 00	1.057E-02	6.141E 00	9.075E-03
3.606E 01	4.530E 00	5.413E 00	-5.388E 02	-1.209E 02	-1.209E 02	0.000	7.752E 02	7.179E 00	1.061E-02	8.579E 00	1.268E-02
3.648E 01	4.992E 00	8.139E 00	-5.512E 02	-1.239E 02	-1.239E 02	0.000	8.190E 02	7.912E 00	1.169E-02	1.290E 01	1.906E-02
3.701E 01	4.725E 00	1.158E 01	-5.655E 02	-1.654E 02	-1.278E 02	-3.757E 01	8.749E 02	7.488E 00	1.107E-02	1.835E 01	2.712E-02
3.728E 01	6.046E 00	1.335E 01	-5.729E 02	-1.782E 02	-1.299E 02	-4.829E 01	9.042E 02	9.581E 00	1.416E-02	2.116E 01	3.126E-02
3.803E 01	9.660E 00	1.593E 01	-6.300E 02	-2.131E 02	-1.360E 02	-7.711E 01	9.858E 02	1.531E 01	2.262E-02	2.525E 01	3.731E-02
3.830E 01	1.255E 01	1.687E 01	-6.564E 02	-2.262E 02	-1.386E 02	-8.759E 01	1.016E 03	1.989E 01	2.938E-02	2.674E 01	3.952E-02
3.875E 01	1.728E 01	1.718E 01	-7.095E 02	-2.489E 02	-1.442E 02	-1.047E 02	1.067E 03	2.738E 01	4.046E-02	2.723E 01	4.024E-02
3.877E 01	1.752E 01	1.720E 01	-7.123E 02	-2.501E 02	-1.445E 02	-1.056E 02	1.069E 03	2.776E 01	4.103E-02	2.726E 01	4.028E-02
3.901E 01	2.002E 01	1.796E 01	-7.375E 02	-2.628E 02	-1.482E 02	-1.146E 02	1.096E 03	3.174E 01	4.690E-02	2.846E 01	4.205E-02
3.928E 01	1.960E 01	1.882E 01	-7.617E 02	-2.782E 02	-1.531E 02	-1.250E 02	1.128E 03	3.106E 01	4.590E-02	2.983E 01	4.409E-02
3.950E 01	1.926E 01	1.279E 01	-7.778E 02	-2.906E 02	-1.576E 02	-1.332E 02	1.153E 03	3.053E 01	4.511E-02	2.027E 01	2.995E-02
3.977E 01	2.034E 01	5.200E 00	-8.054E 02	-3.073E 02	-1.640E 02	-1.434E 02	1.185E 03	3.224E 01	4.764E-02	8.241E 00	1.218E-02
4.000E 01	2.124E 01	5.177E 00	-8.303E 02	-3.216E 02	-1.699E 02	-1.517E 02	1.211E 03	3.366E 01	4.974E-02	8.204E 00	1.212E-02
4.040E 01	2.452E 01	5.135E 00	-8.783E 02	-3.477E 02	-1.814E 02	-1.663E 02	1.258E 03	3.885E 01	5.742E-02	8.139E 00	1.203E-02
4.041E 01	2.460E 01	5.134E 00	-8.794E 02	-3.484E 02	-1.817E 02	-1.667E 02	1.259E 03	3.898E 01	5.761E-02	8.137E 00	1.202E-02
4.127E 01	3.162E 01	5.046E 00	-9.946E 02	-4.137E 02	-2.095E 02	-2.043E 02	1.361E 03	5.012E 01	7.406E-02	7.997E 00	1.182E-02
4.133E 01	3.216E 01	5.039E 00	-1.004E 03	-4.193E 02	-2.117E 02	-2.076E 02	1.369E 03	5.096E 01	7.531E-02	7.986E 00	1.180E-02
4.150E 01	3.352E 01	5.883E 00	-1.028E 03	-4.339E 02	-2.178E 02	-2.162E 02	1.388E 03	5.313E 01	7.851E-02	9.324E 00	1.378E-02
4.246E 01	2.062E 01	1.074E 01	-1.109E 03	-5.231E 02	-2.545E 02	-2.685E 02	1.503E 03	3.269E 01	4.830E-02	1.701E 01	2.514E-02
4.405E 01	2.604E 01	1.879E 01	-1.147E 03	-6.791E 02	-3.157E 02	-3.634E 02	1.696E 03	4.126E 01	6.098E-02	2.978E 01	4.400E-02
4.431E 01	2.691E 01	1.907E 01	-1.154E 03	-7.035E 02	-3.251E 02	-3.784E 02	1.727E 03	4.265E 01	6.302E-02	3.022E 01	4.466E-02
4.477E 01	2.847E 01	1.957E 01	-1.166E 03	-7.420E 02	-3.416E 02	-4.004E 02	1.783E 03	4.511E 01	6.667E-02	3.102E 01	4.584E-02
4.480E 01	2.857E 01	1.961E 01	-1.167E 03	-7.445E 02	-3.427E 02	-4.018E 02	1.787E 03	4.529E 01	6.692E-02	3.108E 01	4.592E-02
4.626E 01	2.257E 01	2.121E 01	-1.155E 03	-8.391E 02	-3.923E 02	-4.468E 02	1.967E 03	3.576E 01	5.285E-02	3.362E 01	4.968E-02
4.729E 01	1.831E 01	2.235E 01	-1.101E 03	-8.934E 02	-4.249E 02	-4.685E 02	2.095E 03	2.902E 01	4.289E-02	3.542E 01	5.234E-02
4.731E 01	1.824E 01	2.226E 01	-1.099E 03	-8.942E 02	-4.254E 02	-4.688E 02	2.097E 03	2.891E 01	4.273E-02	3.528E 01	5.213E-02
4.811E 01	1.087E 01	1.798E 01	-1.040E 03	-9.342E 02	-4.492E 02	-4.850E 02	2.197E 03	1.724E 01	2.547E-02	2.849E 01	4.210E-02
4.874E 01	1.459E 01	1.459E 01	-9.897E 02	-9.641E 02	-4.672E 02	-4.969E 02	2.276E 03	2.312E 01	3.416E-02	2.312E 01	3.416E-02
4.927E 01	1.175E 01	1.175E 01	-9.533E 02	-9.880E 02	-4.817E 02	-5.063E 02	2.342E 03	1.862E 01	2.752E-02	1.862E 01	2.752E-02
5.068E 01	1.026E 01	1.026E 01	-8.719E 02	-1.053E 03	-5.176E 02	-5.356E 02	2.520E 03	1.625E 01	2.402E-02	1.625E 01	2.402E-02
5.278E 01	6.450E 00	6.450E 00	-7.800E 02	-1.139E 03	-5.644E 02	-5.742E 02	2.786E 03	1.022E 01	1.511E-02	1.022E 01	1.511E-02
5.328E 01	5.983E 00	5.983E 00	-7.638E 02	-1.154E 03	-5.743E 02	-5.798E 02	2.850E 03	9.483E 00	1.401E-02	9.483E 00	1.401E-02
5.403E 01	5.445E 00	5.445E 00	-7.417E 02	-1.176E 03	-5.883E 02	-5.874E 02	2.946E 03	8.630E 00	1.275E-02	8.630E 00	1.275E-02
5.479E 01	4.900E 00	4.900E 00	-7.216E 02	-1.196E 03	-6.015E 02	-5.949E 02	3.043E 03	7.766E 00	1.148E-02	7.766E 00	1.148E-02
5.576E 01	4.778E 00	4.778E 00	-6.982E 02	-1.221E 03	-6.167E 02	-6.041E 02	3.107E 03	7.572E 00	1.119E-02	7.572E 00	1.119E-02
5.622E 01	4.720E 00	4.720E 00	-6.571E 02	-1.231E 03	-6.228E 02	-6.084E 02	3.209E 03	7.481E 00	1.105E-02	7.481E 00	1.105E-02
5.627E 01	1.850E 00	4.713E 00	-6.557E 02	-1.232E 03	-6.234E 02	-6.089E 02	3.217E 03	2.932E 00	4.333E-03	7.470E 00	1.104E-02
5.641E 01	1.850E 00	4.695E 00	-6.527E 02	-1.235E 03	-6.250E 02	-6.101E 02	3.234E 03	2.932E 00	4.333E-03	7.442E 00	1.100E-02
5.649E 01	4.685E 00	4.685E 00	-6.508E 02	-1.237E 03	-6.259E 02	-6.109E 02	3.245E 03	7.426E 00	1.097E-02	7.426E 00	1.097E-02
5.677E 01	4.650E 00	4.650E 00	-6.447E 02	-1.242E 03	-6.289E 02	-6.133E 02	3.280E 03	7.370E 00	1.089E-02	7.370E 00	1.089E-02
5.700E 01	4.591E 00	4.591E 00	-6.402E 02	-1.246E 03	-6.312E 02	-6.153E 02	3.309E 03	7.275E 00	1.075E-02	7.275E 00	1.075E-02
5.772E 01	4.400E 00	4.400E 00	-6.280E 02	-1.259E 03	-6.380E 02	-6.214E 02	3.402E 03	6.973E 00	1.030E-02	6.973E 00	1.030E-02
5.874E 01	4.387E 00	4.387E 00	-6.178E 02	-1.276E 03	-6.459E 02	-6.298E 02	3.532E 03	6.953E 00	1.028E-02	6.953E 00	1.028E-02
6.075E 01	2.287E 00	2.287E 00	-6.170E 02	-1.299E 03	-6.567E 02	-6.419E 02	3.790E 03	3.625E 00	5.357E-03	3.625E 00	5.357E-03
6.217E 01	1.800E 00	1.800E 00	-6.170E 02	-1.310E 03	-6.624E 02	-6.478E 02	3.972E 03	2.853E 00	4.215E-03	2.853E 00	4.215E-03
6.464E 01	5.610E 00	5.610E 00	-6.170E 02	-1.335E 03	-6.728E 02	-6.621E 02	4.289E 03	8.891E 00	1.314E-02	8.891E 00	1.314E-02
6.501E 01	3.850E 00	6.191E 00	-6.170E 02	-1.339E 03	-6.744E 02	-6.650E 02	4.337E 03	6.102E 00	9.016E-03	9.812E 00	1.450E-02
6.505E 01	3.850E 00	6.253E 00	-6.170E 02	-1.340E 03	-6.746E 02	-6.653E 02	4.342E 03	6.102E 00	9.016E-03	9.910E 00	1.464E-02

READING = 0094 BLOCK = 33 TIME = 134.142 MACH 5.2 PT = 426.999 TT = 2200.0

XABS	P-IB	P-OB	PDA	DOX	W-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.525E 01	3.699E 00	6.562E 00	-6.170E 02	-1.342E 03	-6.754E 02	-6.670E 02	4.368E 03	5.863E 00	8.664E-03	1.040E 01	1.537E-02
6.691E 01	2.450E 00	4.500E 00	-5.660E 02	-1.362E 03	-6.821E 02	-6.798E 02	4.584E 03	3.883E 00	5.738E-03	7.132E 00	1.054E-02
6.758E 01	2.096E 00	3.397E 00	-5.033E 02	-1.369E 03	-6.846E 02	-6.845E 02	4.665E 03	3.322E 00	4.910E-03	5.384E 00	7.957E-03
6.835E 01	1.690E 00	2.748E 00	-4.366E 02	-1.377E 03	-6.873E 02	-6.900E 02	4.760E 03	2.678E 00	3.958E-03	4.355E 00	6.435E-03
6.907E 01	1.847E 00	2.140E 00	-3.827E 02	-1.385E 03	-6.897E 02	-6.953E 02	4.848E 03	2.927E 00	4.326E-03	3.392E 00	5.012E-03
6.968E 01	1.980E 00	1.772E 00	-3.403E 02	-1.391E 03	-6.916E 02	-6.994E 02	4.922E 03	3.138E 00	4.637E-03	2.809E 00	4.151E-03
7.063E 01	1.767E 00	1.200E 00	-2.852E 02	-1.398E 03	-6.944E 02	-7.037E 02	5.036E 03	2.800E 00	4.137E-03	1.902E 00	2.810E-03
7.106E 01	1.670E 00	1.259E 00	-2.637E 02	-1.401E 03	-6.957E 02	-7.050E 02	5.088E 03	2.647E 00	3.911E-03	1.996E 00	2.949E-03
7.259E 01	1.019E 00	1.470E 00	-1.985E 02	-1.407E 03	-6.993E 02	-7.081E 02	5.273E 03	1.615E 00	2.386E-03	2.330E 00	3.443E-03
7.274E 01	9.550E-01	1.316E 00	-1.935E 02	-1.408E 03	-6.995E 02	-7.083E 02	5.290E 03	1.514E 00	2.237E-03	2.085E 00	3.082E-03
7.349E 01	8.198E-01	5.450E-01	-1.624E 02	-1.410E 03	-7.008E 02	-7.096E 02	5.374E 03	1.299E 00	1.920E-03	8.637E-01	1.276E-03
7.350E 01	8.191E-01	5.409E-01	-1.614E 02	-1.410E 03	-7.008E 02	-7.096E 02	5.375E 03	1.298E 00	1.918E-03	8.572E-01	1.267E-03
7.482E 01	5.800E-01	0.000	-1.466E 02	-1.415E 03	-7.025E 02	-7.121E 02	5.427E 03	9.192E-01	1.358E-03	0.000	0.000
7.767E 01	5.150E-01	0.000	-1.247E 02	-1.417E 03	-7.047E 02	-7.121E 02	5.525E 03	8.162E-01	1.206E-03	0.000	0.000
8.157E 01	5.350E-01	0.000	-1.022E 02	-1.418E 03	-7.054E 02	-7.121E 02	5.630E 03	8.479E-01	1.253E-03	0.000	0.000
8.438E 01	6.150E-01	0.000	-8.946E 01	-1.417E 03	-7.050E 02	-7.121E 02	5.684E 03	9.747E-01	1.440E-03	0.000	0.000
8.724E 01	6.650E-01	0.000	-7.402E 01	-1.416E 03	-7.039E 02	-7.121E 02	5.707E 03	1.054E 00	1.557E-03	0.000	0.000
8.725E 01	6.651E-01	0.000	-7.402E 01	-1.416E 03	-7.039E 02	-7.121E 02	5.707E 03	1.054E 00	1.558E-03	0.000	0.000

READING = 0094 BLOCK = 33 TIME = 134.142 MACH 5.2 PT = 426.999 TT = 2200.0

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.202E 02	1.202E 02	2.242E-03	5.238E-02
4.041E 01	1.706E-01	1.203E 02	2.252E-03	5.447E-02
4.127E 01	1.451E 01	1.348E 02	2.362E-03	5.811E-02
4.133E 01	1.095E 00	1.359E 02	2.371E-03	5.837E-02
4.150E 01	2.809E 00	1.387E 02	2.392E-03	5.915E-02
4.246E 01	1.590E 01	1.546E 02	2.466E-03	6.009E-02
4.405E 01	2.546E 01	1.801E 02	2.506E-03	6.015E-02
4.431E 01	4.000E 00	1.841E 02	2.516E-03	6.028E-02
4.477E 01	7.111E 00	1.912E 02	2.537E-03	6.058E-02
4.480E 01	4.979E-01	1.917E 02	2.539E-03	6.001E-02
4.626E 01	2.208E 01	2.138E 02	2.552E-03	5.731E-02
4.729E 01	1.493E 01	2.287E 02	2.516E-03	5.240E-02
4.731E 01	2.377E-01	2.290E 02	2.515E-03	5.226E-02
4.811E 01	1.102E 01	2.400E 02	2.472E-03	4.759E-02
4.874E 01	8.255E 00	2.482E 02	2.434E-03	4.311E-02
4.927E 01	6.509E 00	2.548E 02	2.406E-03	3.971E-02
5.068E 01	1.569E 01	2.704E 02	2.338E-03	3.262E-02
5.278E 01	1.989E 01	2.903E 02	2.270E-03	2.508E-02
5.328E 01	4.232E 00	2.946E 02	2.258E-03	2.447E-02
5.403E 01	6.058E 00	3.006E 02	2.241E-03	2.284E-02
5.479E 01	5.816E 00	3.064E 02	2.226E-03	2.141E-02
5.576E 01	6.991E 00	3.134E 02	2.209E-03	1.984E-02
5.622E 01	2.067E 00	3.155E 02	2.163E-03	1.562E-02
5.627E 01	3.083E-01	3.158E 02	2.162E-03	1.556E-02
5.641E 01	7.738E-01	3.166E 02	2.160E-03	1.543E-02
5.649E 01	4.460E-01	3.170E 02	2.153E-03	1.555E-02
5.677E 01	1.557E 00	3.186E 02	2.145E-03	1.543E-02
5.700E 01	1.254E 00	3.198E 02	2.140E-03	1.536E-02
5.772E 01	3.987E 00	3.238E 02	2.128E-03	1.503E-02
5.874E 01	5.552E 00	3.294E 02	2.119E-03	1.485E-02
6.075E 01	1.107E 01	3.404E 02	2.122E-03	1.540E-02
6.217E 01	8.032E 00	3.485E 02	2.122E-03	1.583E-02
6.325E 01	1.377E 01	3.622E 02	2.144E-03	1.517E-02
6.464E 01	1.394E 01	3.762E 02	2.138E-03	1.530E-02
6.501E 01	2.038E 00	3.802E 02	2.116E-03	1.412E-02
6.505E 01	2.106E-01	3.804E 02	2.116E-03	1.416E-02
6.525E 01	1.059E 00	3.815E 02	2.118E-03	1.433E-02
6.691E 01	8.017E 00	3.895E 02	2.039E-03	1.079E-02
6.758E 01	2.513E 00	3.920E 02	1.994E-03	9.071E-03
6.835E 01	2.533E 00	3.945E 02	1.954E-03	7.743E-03
6.907E 01	2.118E 00	3.967E 02	1.932E-03	7.144E-03
6.968E 01	1.688E 00	3.983E 02	1.921E-03	6.845E-03
7.063E 01	2.372E 00	4.007E 02	1.880E-03	5.727E-03
7.106E 01	9.916E-01	4.017E 02	1.876E-03	5.669E-03
7.259E 01	3.313E 00	4.050E 02	1.846E-03	5.012E-03
7.274E 01	2.842E-01	4.053E 02	1.831E-03	4.680E-03
7.349E 01	1.147E 00	4.065E 02	1.750E-03	3.195E-03
7.350E 01	1.821E-03	4.065E 02	1.749E-03	3.187E-03
7.482E 01	5.511E-01	4.070E 02	1.722E-03	2.823E-03
7.767E 01	9.428E-01	4.079E 02	1.696E-03	2.569E-03
8.157E 01	9.736E-01	4.089E 02	1.692E-03	2.626E-03
8.438E 01	5.363E-01	4.095E 02	1.704E-03	2.900E-03
8.724E 01	2.393E-01	4.097E 02	1.707E-03	3.060E-03
8.725E 01	0.000	4.097E 02	1.707E-03	3.061E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-480.	(LBF)
MEASURED THRUST	-614.	(LBF)
CALCULATED SPECIFIC IMPULSE	-480.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-614.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.1617	
MEASURED THRUST COEFFICIENT	-.2067	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	120.2	(LBF)
INLET MOMENTUM CHANGE	-998.5	(LBF)
COMBUSTOR FRICTION DRAG	228.3	(LBF)
COMBUSTOR STRUT DRAG	8.27	(LBF)
COMBUSTOR MOMENTUM CHANGE	25.	(LBF)
NOZZLE FRICTION DRAG	45.46	(LBF)
NOZZLE STRUT DRAG	4.08	(LBF)
NOZZLE MOMENTUM CHANGE	493.	(LBF)
NOZZLE PRESSURE INTEGRAL	543.	(LBF)
EXTERNAL FRICTION DRAG	52.50	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1303.	(LBF)
TOTAL EXTERNAL DRAG	-1356.	(LBF)
TOTAL STRUT DRAG	12.35	(LBF)
CAVITY FORCE	-1307.	(LBF)
CALCULATED LOAD CELL FORCE	-3143.	(LBF)
MEASURED LOAD CELL FORCE	-3277.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2730	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.157	(IN)
NOZZLE SHROUD TRAILING EDGE	73.497	(IN)
NOZZLE PLUG TRAILING EDGE	87.249	(IN)
STRUT LEADING EDGE	56.413	(IN)
STRUT TRAILING EDGE	65.013	(IN)
COMBUSTOR EXIT	62.173	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8666	
ADDITIVE DRAG COEFFICIENT	0.0109	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2780	
DELTA PT2	0.1463	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4370	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2831	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8991	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9158	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9323	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.9011	
ENTHALPY AT PO - SUPERSONIC	-17.13	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-2.31	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.3847
COMBUSTOR EFFECTIVENESS	0.8052
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9826
NOZZLE COEFFICIENT - CT	0.9307
PROCESS EFFICIENCY	0.9145
KINETIC ENERGY EFFICIENCY	0.9631

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.258	
1C	44.300	
2A	48.733	
2C	46.250	
3A	54.023	
3B	56.208	
4	44.758	

Reading 94

t = 140.44 sec.

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READING = 0094  BLOCK =  40  TIME = 140.442  MACH  5.2  PT = 415.749  TT = 2245.2                                              PAGE  1
                                                RAMJET PERFORMANCE

                                              S U M M A R Y   R E P O R T

                  P      T       H              GAMMA  MOLWT SONV  MACH  VEL    S     W/A      W      A/AC    MOMTM   Q      IVAC  PHI  ETAC
WIND TUNNEL              1     0   4
 0.000    415.749 2245   448.6( 577) 1.3179 28.866 2257
 0.000      0.583  378   -38.2(  91) 1.3984 28.866  955 5.170 4936 1.783 0.14195 31.481 0.8659   4958 10.888 157.5
SPIKE TIP NS             2     0   6
 0.600     21.125 2245   448.6( 577) 1.3179 28.866 2258
 0.600     19.131 2192   433.4( 562) 1.3197 28.866 2232 0.390  871 1.988 0.14195 31.481 0.8659   5095  1.921 161.8
WIND TUNNEL              3     0   0
 0.000    415.749 2245   448.6( 577) 1.3179 28.866 2257
 0.000      0.612  384   -36.9(  92) 1.3985 28.866  961 5.127 4929 1.783 0.14684 32.565 0.8659   5125 11.248 157.4
SPIKE TIP NS             4     0   0
 0.600     21.125 2245   448.6( 577) 1.3179 28.866 2258
 0.600     18.970 2188   432.2( 561) 1.3199 28.866 2230 0.406  906 1.988 0.14684 32.565 0.8659   5125  2.068 157.4
INLET THROAT             5     0   4
40.400    183.691 2202   436.4( 565) 1.3194 28.866 2237
40.400     20.839 1268   181.7( 311) 1.3626 28.866 1725 2.069 3570 1.834 1.09601 32.565 0.1121   4212 62.895 129.3
INLET UPNRSK             6     0   2
40.400    183.691 2202   436.4( 565) 1.3194 28.866 2237
40.400     18.703 1232   172.4( 302) 1.3648 28.866 1702 2.136 3634 1.834 1.03068 32.565 0.1234   4269 58.211 131.1
INLET DNNRSK             7     0   4
40.400    117.418 2202   436.4( 565) 1.3194 28.866 2237
40.400     96.736 2101   407.7( 537) 1.3229 28.866 2188 0.548 1198 1.865 1.03068 32.565 0.1234   4269 19.194 131.1
COMBUSTOR          0     8     1   4
40.410    183.521 2202   436.3( 565) 1.3194 28.866 2237
40.410     22.147 1289   187.1( 316) 1.3613 28.866 1738 2.031 3531 1.834 1.13361 32.565 0.1122   4210 62.211 129.3
COMBUSTOR          0     9     2   4
41.276    154.325 2195   434.2( 563) 1.3196 28.866 2233
41.276     25.721 1398   215.7( 345) 1.3546 28.866 1806 1.831 3307 1.848 1.13650 32.565 0.1119   4084 58.403 125.4
COMBUSTOR          0    10     3   4
41.341    152.449 2194   434.0( 563) 1.3197 28.866 2233
41.341     26.038 1407   217.9( 347) 1.3541 28.866 1811 1.815 3208 1.846 1.13716 32.565 0.1118   4074 58.111 125.1
COMBUSTOR          0    11     4   4
41.500    148.148 2192   433.6( 562) 1.3197 28.866 2232
41.500     26.841 1427   223.4( 353) 1.3529 28.866 1824 1.778 3243 1.847 1.13912 32.565 0.1116   4049 57.405 124.3
COMBUSTOR          0    12     5   5
42.460    131.885 2182   430.6( 560) 1.3201 28.866 2227
42.460     29.535 1500   242.8( 372) 1.3487 28.866 1867 1.642 3066 1.854 1.12725 32.565 0.1128   3956 53.706 121.5
COMBUSTOR          0    13     6   4
44.061    120.727 2164   425.4( 554) 1.3207 28.866 2219
44.061     30.194 1530   250.7( 380) 1.3471 28.866 1884 1.569 2957 1.858 1.09006 32.565 0.1166   3895 50.091 119.6
COMBUSTOR          0    14     7   4
44.310    119.522 2161   424.6( 554) 1.3208 28.866 2217
44.310     30.438 1535   252.0( 381) 1.3468 28.866 1887 1.557 2939 1.858 1.08851 32.565 0.1168   3885 49.714 119.3
COMBUSTOR          0    15     8   4
44.776    116.953 2156   423.3( 552) 1.3210 28.866 2215
44.776     30.960 1547   255.2( 384) 1.3462 28.866 1894 1.532 2900 1.859 1.08432 32.565 0.1173   3865 48.875 118.7
COMBUSTOR          0    16     9   4
44.800    116.801 2156   423.3( 552) 1.3210 28.866 2215
44.800     30.966 1547   255.3( 385) 1.3461 28.866 1894 1.531 2899 1.859 1.08365 32.565 0.1173   3865 48.819 118.7
COMBUSTOR          0    17    10   4
46.260    109.821 2145   420.1( 549) 1.3214 28.866 2209
46.260     29.040 1538   252.8( 382) 1.3466 28.866 1889 1.532 2894 1.862 1.02069 32.565 0.1246   3855 45.898 118.4
COMBUSTOR          0    18    11   4
47.301    107.395 2139   418.3( 547) 1.3216 28.866 2206
47.301     25.298 1488   239.4( 369) 1.3494 28.866 1860 1.609 2991 1.862 0.95003 32.565 0.1338   3895 44.164 119.6
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READING = 0094 BLOCK = 40 TIME = 140.442 MACH 5.2 PT = 415.749 TT = 2245.2

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.310	107.404	2139	418.3(547)	1.3216	28.866	2206											
47.310	25.291	1488	239.4(369)	1.3494	28.866	1860	1.609	2992	1.862	0.94997	32.565	0.1338	3895	44.166	119.6		
COMBUSTOR	0	20	13 5														
48.110	106.540	2134	416.9(546)	1.3217	28.866	2204											
48.110	21.913	1433	224.9(354)	1.3526	28.866	1827	1.697	3100	1.862	0.88544	32.565	0.1436	3943	42.654	121.1		
COMBUSTOR	0	21	14 21														
48.741	63.596	2158	442.7(648)	1.3258	24.473	2411											
48.741	15.573	1512	234.9(441)	1.3527	24.473	2038	1.582	3224	2.174	0.83087	33.029	0.1552	3929	41.634	119.0	0.48	0.07
COMBUSTOR	0	22	15 21														
48.751	71.455	2015	448.7(603)	1.3325	24.342	2342											
48.751	15.531	1360	234.7(395)	1.3621	24.342	1945	1.659	3226	2.145	0.82979	33.029	0.1554	3930	41.599	119.0	0.48	0.01
COMBUSTOR	0	23	16 21														
49.281	69.171	1991	441.9(596)	1.3337	24.323	2330											
49.281	13.312	1300	223.2(377)	1.3656	24.323	1905	1.737	3308	2.144	0.77606	33.029	0.1662	3962	39.895	120.0	0.48	0.00
COMBUSTOR	0	24	17 21														
50.691	71.118	1981	439.7(593)	1.3341	24.320	2324											
50.691	15.825	1344	237.7(391)	1.3632	24.320	1935	1.643	3179	2.140	0.66141	33.029	0.1958	4054	32.677	122.7	0.48	0.00
COMBUSTOR	0	25	18 21														
52.791	66.054	1967	435.4(591)	1.3347	24.212	2322											
52.791	10.900	1231	202.5(358)	1.3695	24.212	1860	1.835	3414	2.151	0.54400	33.144	0.2379	4181	28.858	126.1	0.49	0.00
COMBUSTOR	0	26	19 21														
53.291	65.844	1960	434.8(588)	1.3350	24.207	2318											
53.291	10.417	1212	198.8(352)	1.3705	24.207	1847	1.861	3439	2.151	0.52177	33.144	0.2488	4204	27.882	126.8	0.49	0.00
COMBUSTOR	0	27	20 21														
54.041	64.406	1957	433.9(587)	1.3351	24.207	2316											
54.041	9.018	1171	186.1(340)	1.3728	24.207	1817	1.938	3521	2.152	0.49183	33.144	0.2631	4235	26.915	127.8	0.49	0.00
COMBUSTOR	0	28	21 21														
54.801	62.384	1954	433.1(587)	1.3352	24.207	2315											
54.801	7.600	1128	172.6(326)	1.3753	24.206	1783	2.025	3611	2.154	0.46510	33.144	0.2782	4261	26.100	128.6	0.49	0.00
COMBUSTOR	0	29	22 21														
55.760	55.701	2015	432.2(605)	1.3323	24.264	2345											
55.760	6.898	1169	165.3(339)	1.3724	24.264	1813	2.015	3654	2.172	0.43573	33.144	0.2976	4289	24.744	129.4	0.49	0.03
COMBUSTOR	0	30	23 21														
56.226	54.073	1960	431.8(588)	1.3349	24.215	2317											
56.226	6.556	1127	170.1(327)	1.3751	24.215	1784	2.028	3618	2.167	0.35181	33.144	0.3678	4345	19.783	131.1	0.49	0.00
COMBUSTOR	0	31	24 21														
56.281	51.825	1951	431.7(586)	1.3353	24.208	2313											
56.281	4.583	1029	143.3(297)	1.3805	24.208	1708	2.224	3799	2.169	0.35076	33.144	0.3689	4347	20.709	131.1	0.49	0.00
COMBUSTOR	0	32	25 21														
56.421	51.838	1950	431.6(585)	1.3354	24.207	2313											
56.421	4.532	1025	142.4(296)	1.3807	24.207	1705	2.231	3804	2.168	0.34818	33.144	0.3717	4350	20.583	131.2	0.49	0.00
COMBUSTOR	0	33	26 21														
56.501	53.158	1978	431.5(594)	1.3340	24.232	2327											
56.501	6.355	1135	166.2(329)	1.3746	24.232	1789	2.037	3644	2.171	0.35208	33.144	0.3675	4352	19.938	131.3	0.49	0.01
COMBUSTOR	0	34	27 21														
56.781	55.355	1953	431.3(586)	1.3352	24.210	2314											
56.781	6.150	1097	162.6(317)	1.3768	24.210	1761	2.082	3667	2.164	0.35104	33.144	0.3686	4358	20.006	131.5	0.49	0.00
COMBUSTOR	0	35	28 21														
57.007	55.962	1949	431.1(585)	1.3354	24.207	2312											
57.007	6.102	1089	161.3(315)	1.3773	24.207	1755	2.094	3675	2.162	0.35031	33.144	0.3694	4363	20.006	131.6	0.49	0.00
COMBUSTOR	0	36	29 21														
57.731	56.288	1947	430.6(584)	1.3355	24.207	2311											
57.731	5.950	1078	158.3(312)	1.3779	24.207	1747	2.113	3691	2.161	0.34482	33.144	0.3753	4375	19.781	132.0	0.49	0.00
COMBUSTOR	0	37	30 21														
58.751	54.668	1944	429.9(583)	1.3356	24.207	2310											
58.751	4.575	1010	137.9(291)	1.3815	24.206	1693	2.258	3822	2.163	0.34262	33.144	0.3777	4380	20.353	132.2	0.49	0.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
60.761	31.735	2079	428.8(626)	1.3291	24.332	2376											
60.761	2.287	1045	103.9(301)	1.3786	24.332	1716	2.350	4032	2.227	0.35455	33.144	0.3650	4367	22.217	131.8	0.49	0.06
COMBUSTOR	0	39	32 21														
62.181	55.165	1959	428.0(588)	1.3348	24.225	2317											
62.181	5.175	1051	143.6(304)	1.3792	24.225	1725	2.187	3773	2.165	0.36416	33.144	0.3553	4357	21.351	131.5	0.49	0.01
COMBUSTOR	0	40	33 4														
64.645	45.265	2104	426.3(634)	1.3278	24.361	2388											
64.645	9.075	1396	199.6(407)	1.3589	24.361	1968	1.712	3368	2.201	0.34518	33.144	0.3749	4341	18.068	131.0	0.49	0.07
COMBUSTOR	0	41	34 3														
65.021	41.422	2119	426.0(638)	1.3271	24.376	2395											
65.021	8.648	1422	202.4(415)	1.3574	24.376	1984	1.686	3345	2.210	0.32090	33.144	0.4032	4339	16.681	130.9	0.49	0.08
COMBUSTOR	REGEN	42	35 2														
65.021	41.422	2114	424.2(636)	1.3273	24.376	2392											
65.021	8.620	1417	200.8(413)	1.3577	24.376	1981	1.688	3343	2.209	0.32090	33.144	0.4032	4334	16.673	130.8	0.49	0.08
NOZZLE AE		43	36 3														
87.257	41.422	2119	426.0(638)	1.3271	24.376	2395											
87.257	0.621	689	-15.8(197)	1.3944	24.376	1400	3.358	4702	2.210	0.06680	33.144	1.9371	5152	4.881	155.4	0.49	0.08
NOZZLE PO		44	37 3														
87.257	41.422	2119	426.0(638)	1.3271	24.376	2395											
87.257	0.612	687	-16.6(196)	1.3945	24.376	1397	3.368	4706	2.210	0.06617	33.144	1.9557	5155	4.839	155.5	0.49	0.08
NOZZLE AE REGEN		45	38 3														
87.257	41.422	2114	424.2(636)	1.3273	24.376	2392											
87.257	0.619	687	-16.6(196)	1.3945	24.376	1398	3.360	4696	2.209	0.06680	33.144	1.9371	5145	4.875	155.2	0.49	0.08
NOZZLE PO REGEN		46	39 3														
87.257	41.422	2114	424.2(636)	1.3273	24.376	2392											
87.257	0.612	684	-17.2(195)	1.3946	24.376	1395	3.368	4700	2.209	0.06627	33.144	1.9526	5147	4.840	155.3	0.49	0.08
FICTIVE COMBUSTR		66	59 0														
65.021	183.691	4100	426.0(1290)	1.2332	26.474	3082											
65.021	0.612	1113	-587.6(304)	1.3569	26.510	1683	4.232	7128	2.232	0.06717	33.144	1.9264	7639	7.435	230.5	0.49	1.00
FICTIVE NOZZLE		67	60 0														
87.257	29.317	2103	420.5(633)	1.3277	24.376	2386											
87.257	0.744	793	14.0(226)	1.3905	24.376	1499	3.008	4510	2.236	0.06680	33.144	1.9371	5015	4.682	151.3	0.49	0.08

READING = 0094 BLOCK = 40 TIME = 140.442 MACH 5.2 PT = 415.749 TT = 2245.2

XABS	P-IB	P-OB	PDA	QUX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.410E 00	0.000	-5.170E-01	0.000	0.000	0.000	2.470E-02	2.304E 00	3.391E-03	0.000	0.000
1.836E 01	1.410E 00	0.000	-4.687E 01	0.000	0.000	0.000	1.634E 02	2.304E 00	3.391E-03	0.000	0.000
3.070E 01	2.535E 00	0.000	-2.068E 02	0.000	0.000	0.000	5.053E 02	4.143E 00	6.097E-03	0.000	0.000
3.508E 01	4.226E 00	0.000	-4.259E 02	0.000	0.000	0.000	6.804E 02	6.907E 00	1.017E-02	0.000	0.000
3.516E 01	4.248E 00	6.028E 00	-4.915E 02	0.000	0.000	0.000	6.839E 02	6.942E 00	1.022E-02	9.851E 00	1.450E-02
3.516E 01	4.250E 00	6.008E 00	-4.915E 02	0.000	0.000	0.000	6.842E 02	6.945E 00	1.022E-02	9.819E 00	1.445E-02
3.555E 01	4.355E 00	4.746E 00	-4.997E 02	0.000	0.000	0.000	7.228E 02	7.117E 00	1.048E-02	7.756E 00	1.141E-02
3.583E 01	4.388E 00	3.825E 00	-5.108E 02	-1.489E 02	-1.489E 02	0.000	7.513E 02	7.171E 00	1.055E-02	6.251E 00	9.200E-03
3.606E 01	4.415E 00	5.253E 00	-5.200E 02	-1.508E 02	-1.508E 02	0.000	7.748E 02	7.215E 00	1.062E-02	8.585E 00	1.263E-02
3.648E 01	4.812E 00	7.871E 00	-5.325E 02	-1.545E 02	-1.545E 02	0.000	8.185E 02	7.864E 00	1.157E-02	1.286E 01	1.893E-02
3.701E 01	4.567E 00	1.117E 01	-5.459E 02	-1.998E 02	-1.594E 02	-4.011E 01	8.745E 02	7.465E 00	1.099E-02	1.826E 01	2.688E-02
3.729E 01	5.887E 00	1.292E 01	-5.530E 02	-2.141E 02	-1.621E 02	-5.193E 01	9.046E 02	9.622E 00	1.416E-02	2.112E 01	3.109E-02
3.803E 01	9.360E 00	1.537E 01	-6.081E 02	-2.521E 02	-1.697E 02	-8.247E 01	9.854E 02	1.530E 01	2.251E-02	2.512E 01	3.697E-02
3.831E 01	1.223E 01	1.630E 01	-6.345E 02	-2.670E 02	-1.730E 02	-9.402E 01	1.017E 03	2.000E 01	2.943E-02	2.664E 01	3.921E-02
3.875E 01	1.673E 01	1.658E 01	-6.854E 02	-2.914E 02	-1.794E 02	-1.120E 02	1.066E 03	2.734E 01	4.023E-02	2.710E 01	3.988E-02
3.878E 01	1.704E 01	1.660E 01	-6.889E 02	-2.932E 02	-1.799E 02	-1.133E 02	1.070E 03	2.785E 01	4.100E-02	2.713E 01	3.993E-02
3.901E 01	1.939E 01	1.738E 01	-7.125E 02	-3.066E 02	-1.840E 02	-1.226E 02	1.096E 03	3.168E 01	4.663E-02	2.840E 01	4.180E-02
3.929E 01	1.894E 01	1.834E 01	-7.369E 02	-3.238E 02	-1.897E 02	-1.341E 02	1.128E 03	3.096E 01	4.556E-02	2.997E 01	4.411E-02
3.950E 01	1.861E 01	1.268E 01	-7.510E 02	-3.370E 02	-1.944E 02	-1.425E 02	1.153E 03	3.042E 01	4.477E-02	2.072E 01	3.050E-02
3.978E 01	1.974E 01	5.075E 00	-7.765E 02	-3.554E 02	-2.016E 02	-1.537E 02	1.185E 03	3.227E 01	4.749E-02	8.294E 00	1.221E-02
4.000E 01	2.063E 01	5.045E 00	-8.015E 02	-3.702E 02	-2.079E 02	-1.623E 02	1.211E 03	3.371E 01	4.962E-02	8.245E 00	1.213E-02
4.040E 01	2.373E 01	4.989E 00	-8.480E 02	-3.982E 02	-2.203E 02	-1.780E 02	1.258E 03	3.878E 01	5.707E-02	8.154E 00	1.200E-02
4.041E 01	2.380E 01	4.988E 00	-8.490E 02	-3.990E 02	-2.206E 02	-1.784E 02	1.259E 03	3.890E 01	5.726E-02	8.152E 00	1.200E-02
4.128E 01	3.051E 01	4.868E 00	-9.613E 02	-4.697E 02	-2.509E 02	-2.188E 02	1.361E 03	4.987E 01	7.339E-02	7.956E 00	1.171E-02
4.134E 01	3.102E 01	4.859E 00	-9.702E 02	-4.757E 02	-2.534E 02	-2.224E 02	1.369E 03	5.069E 01	7.461E-02	7.942E 00	1.169E-02
4.150E 01	3.225E 01	5.657E 00	-9.920E 02	-4.907E 02	-2.596E 02	-2.311E 02	1.388E 03	5.271E 01	7.757E-02	9.245E 00	1.361E-02
4.246E 01	1.984E 01	1.047E 01	-1.070E 03	-5.862E 02	-2.993E 02	-2.869E 02	1.503E 03	3.242E 01	4.772E-02	1.711E 01	2.518E-02
4.406E 01	2.535E 01	1.850E 01	-1.106E 03	-7.553E 02	-3.661E 02	-3.892E 02	1.697E 03	4.144E 01	6.098E-02	3.023E 01	4.449E-02
4.431E 01	2.621E 01	1.874E 01	-1.112E 03	-7.810E 02	-3.761E 02	-4.049E 02	1.727E 03	4.284E 01	6.305E-02	3.062E 01	4.506E-02
4.478E 01	2.782E 01	1.918E 01	-1.124E 03	-8.238E 02	-3.944E 02	-4.298E 02	1.784E 03	4.546E 01	6.691E-02	3.135E 01	4.614E-02
4.480E 01	2.790E 01	1.920E 01	-1.125E 03	-8.255E 02	-3.954E 02	-4.301E 02	1.787E 03	4.560E 01	6.711E-02	3.139E 01	4.619E-02
4.626E 01	2.181E 01	2.060E 01	-1.112E 03	-9.282E 02	-4.499E 02	-4.783E 02	1.966E 03	3.565E 01	5.247E-02	3.367E 01	4.956E-02
4.730E 01	1.748E 01	2.160E 01	-1.058E 03	-9.875E 02	-4.862E 02	-5.013E 02	2.095E 03	2.856E 01	4.203E-02	3.530E 01	5.195E-02
4.731E 01	1.744E 01	2.156E 01	-1.058E 03	-9.880E 02	-4.865E 02	-5.015E 02	2.096E 03	2.850E 01	4.194E-02	3.524E 01	5.186E-02
4.811E 01	1.035E 01	1.821E 01	-9.986E 02	-1.032E 03	-5.130E 02	-5.190E 02	2.196E 03	1.691E 01	2.489E-02	2.977E 01	4.381E-02
4.874E 01	1.557E 01	1.557E 01	-9.464E 02	-1.066E 03	-5.330E 02	-5.326E 02	2.275E 03	2.545E 01	3.746E-02	2.545E 01	3.746E-02
4.875E 01	1.553E 01	1.553E 01	-9.456E 02	-1.066E 03	-5.333E 02	-5.328E 02	2.276E 03	2.538E 01	3.736E-02	2.538E 01	3.736E-02
4.928E 01	1.331E 01	1.331E 01	-9.057E 02	-1.094E 03	-5.495E 02	-5.440E 02	2.343E 03	2.176E 01	3.202E-02	2.176E 01	3.202E-02
5.069E 01	1.582E 01	1.582E 01	-7.980E 02	-1.165E 03	-5.900E 02	-5.746E 02	2.520E 03	2.586E 01	3.806E-02	2.586E 01	3.806E-02
5.279E 01	1.090E 01	1.090E 01	-6.509E 02	-1.258E 03	-6.433E 02	-6.143E 02	2.787E 03	1.781E 01	2.622E-02	1.781E 01	2.622E-02
5.329E 01	1.042E 01	1.042E 01	-6.232E 02	-1.277E 03	-6.548E 02	-6.220E 02	2.850E 03	1.702E 01	2.506E-02	1.702E 01	2.506E-02
5.404E 01	9.018E 00	9.018E 00	-5.856E 02	-1.305E 03	-6.711E 02	-6.335E 02	2.946E 03	1.474E 01	2.169E-02	1.474E 01	2.169E-02
5.480E 01	7.600E 00	7.600E 00	-5.534E 02	-1.331E 03	-6.865E 02	-6.448E 02	3.044E 03	1.242E 01	1.828E-02	1.242E 01	1.828E-02
5.576E 01	6.898E 00	6.898E 00	-5.185E 02	-1.363E 03	-7.046E 02	-6.584E 02	3.167E 03	1.127E 01	1.659E-02	1.127E 01	1.659E-02
5.623E 01	6.556E 00	6.556E 00	-4.601E 02	-1.377E 03	-7.119E 02	-6.648E 02	3.209E 03	1.072E 01	1.577E-02	1.072E 01	1.577E-02
5.628E 01	2.650E 00	6.516E 00	-4.582E 02	-1.378E 03	-7.126E 02	-6.656E 02	3.217E 03	4.331E 00	6.374E-03	1.065E 01	1.567E-02
5.642E 01	2.650E 00	6.414E 00	-4.540E 02	-1.382E 03	-7.145E 02	-6.675E 02	3.234E 03	4.331E 00	6.374E-03	1.048E 01	1.543E-02
5.650E 01	6.355E 00	6.355E 00	-4.515E 02	-1.384E 03	-7.155E 02	-6.685E 02	3.245E 03	1.039E 01	1.529E-02	1.039E 01	1.529E-02
5.678E 01	6.150E 00	6.150E 00	-4.433E 02	-1.391E 03	-7.191E 02	-6.723E 02	3.280E 03	1.005E 01	1.479E-02	1.005E 01	1.479E-02
5.701E 01	6.102E 00	6.102E 00	-4.373E 02	-1.397E 03	-7.219E 02	-6.754E 02	3.309E 03	9.973E 00	1.468E-02	9.973E 00	1.468E-02
5.773E 01	5.950E 00	5.950E 00	-4.210E 02	-1.415E 03	-7.301E 02	-6.852E 02	3.402E 03	9.724E 00	1.431E-02	9.724E 00	1.431E-02
5.875E 01	4.575E 00	4.575E 00	-4.088E 02	-1.438E 03	-7.398E 02	-6.981E 02	3.532E 03	7.477E 00	1.100E-02	7.477E 00	1.100E-02
6.076E 01	2.287E 00	2.287E 00	-4.080E 02	-1.475E 03	-7.546E 02	-7.208E 02	3.790E 03	3.738E 00	5.502E-03	3.738E 00	5.502E-03
6.218E 01	5.175E 00	5.175E 00	-4.080E 02	-1.501E 03	-7.641E 02	-7.370E 02	3.972E 03	8.457E 00	1.245E-02	8.457E 00	1.245E-02
6.464E 01	9.075E 00	9.075E 00	-4.080E 02	-1.558E 03	-7.847E 02	-7.737E 02	4.289E 03	1.483E 01	2.183E-02	1.483E 01	2.183E-02
6.502E 01	7.625E 00	9.670E 00	-4.080E 02	-1.568E 03	-7.883E 02	-7.801E 02	4.337E 03	1.246E 01	1.834E-02	1.580E 01	2.326E-02

READING = 0094 BLOCK = 40 TIME = 140.442 MACH 5.2 PT = 415.749 TT = 2245.2

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.506E 01	7.625E 00	9.733E 00	-4.080E 02	-1.569E 03	-7.887E 02	-7.808E 02	4.342E 03	1.246E 01	1.834E-02	1.591E 01	2.341E-02
6.526E 01	7.413E 00	1.005E 01	-4.080E 02	-1.574E 03	-7.906E 02	-7.838E 02	4.368E 03	1.211E 01	1.783E-02	1.642E 01	2.417E-02
6.692E 01	5.650E 00	5.050E 00	-3.284E 02	-1.611E 03	-8.046E 02	-8.064E 02	4.584E 03	9.234E 00	1.359E-02	8.253E 00	1.215E-02
6.759E 01	4.161E 00	4.972E 00	-2.280E 02	-1.625E 03	-8.093E 02	-8.152E 02	4.665E 03	6.800E 00	1.001E-02	8.127E 00	1.196E-02
6.836E 01	2.450E 00	4.612E 00	-1.183E 02	-1.640E 03	-8.141E 02	-8.263E 02	4.760E 03	4.004E 00	5.893E-03	7.537E 00	1.109E-02
6.908E 01	2.388E 00	4.275E 00	-3.232E 01	-1.656E 03	-8.183E 02	-8.374E 02	4.848E 03	3.902E 00	5.743E-03	6.987E 00	1.028E-02
6.969E 01	2.335E 00	3.073E 00	3.199E 01	-1.668E 03	-8.216E 02	-8.461E 02	4.922E 03	3.816E 00	5.616E-03	5.022E 00	7.390E-03
7.064E 01	1.691E 00	1.200E 00	9.854E 01	-1.682E 03	-8.264E 02	-8.551E 02	5.036E 03	2.764E 00	4.068E-03	1.961E 00	2.886E-03
7.107E 01	1.400E 00	1.261E 00	1.187E 02	-1.687E 03	-8.285E 02	-8.580E 02	5.088E 03	2.288E 00	3.367E-03	2.062E 00	3.034E-03
7.260E 01	9.264E-01	1.480E 00	1.789E 02	-1.705E 03	-8.348E 02	-8.704E 02	5.273E 03	1.514E 00	2.228E-03	2.419E 00	3.560E-03
7.275E 01	8.800E-01	1.325E 00	1.838E 02	-1.707E 03	-8.353E 02	-8.718E 02	5.290E 03	1.438E 00	2.117E-03	2.165E 00	3.187E-03
7.350E 01	7.610E-01	5.500E-01	2.142E 02	-1.718E 03	-8.375E 02	-8.806E 02	5.374E 03	1.244E 00	1.830E-03	8.989E-01	1.323E-03
7.350E 01	7.604E-01	5.459E-01	2.152E 02	-1.718E 03	-8.376E 02	-8.807E 02	5.375E 03	1.243E 00	1.829E-03	8.921E-01	1.313E-03
7.483E 01	5.500E-01	0.000	2.291E 02	-1.740E 03	-8.408E 02	-8.991E 02	5.427E 03	8.989E-01	1.323E-03	0.000	0.000
7.768E 01	4.950E-01	0.000	2.500E 02	-1.745E 03	-8.454E 02	-8.991E 02	5.525E 03	8.090E-01	1.191E-03	0.000	0.000
8.158E 01	5.000E-01	0.000	2.712E 02	-1.747E 03	-8.481E 02	-8.991E 02	5.630E 03	8.171E-01	1.203E-03	0.000	0.000
8.439E 01	6.150E-01	0.000	2.836E 02	-1.748E 03	-8.493E 02	-8.991E 02	5.684E 03	1.005E 00	1.479E-03	0.000	0.000
8.725E 01	6.050E-01	0.000	2.983E 02	-1.751E 03	-8.514E 02	-8.991E 02	5.707E 03	9.887E-01	1.455E-03	0.000	0.000
8.726E 01	6.050E-01	0.000	2.983E 02	-1.751E 03	-8.514E 02	-8.991E 02	5.707E 03	9.887E-01	1.455E-03	0.000	0.000

READING = 0094 BLOCK = 40 TIME = 140.442 MACH 5.2 PT = 415.749 TT = 2245.2

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.177E 02	1.177E 02	2.257E-03	5.064E-02
4.041E 01	1.671E-01	1.178E 02	2.267E-03	5.272E-02
4.128E 01	1.434E 01	1.322E 02	2.379E-03	5.621E-02
4.134E 01	1.074E 00	1.333E 02	2.387E-03	5.650E-02
4.150E 01	2.622E 00	1.359E 02	2.407E-03	5.722E-02
4.246E 01	1.560E 01	1.515E 02	2.480E-03	5.885E-02
4.406E 01	2.512E 01	1.766E 02	2.518E-03	5.798E-02
4.431E 01	3.812E 00	1.804E 02	2.527E-03	5.814E-02
4.478E 01	7.114E 00	1.875E 02	2.548E-03	5.844E-02
4.480E 01	3.665E-01	1.879E 02	2.549E-03	5.843E-02
4.626E 01	2.171E 01	2.096E 02	2.561E-03	5.520E-02
4.730E 01	1.477E 01	2.244E 02	2.522E-03	5.031E-02
4.731E 01	1.301E-01	2.245E 02	2.522E-03	5.031E-02
4.811E 01	1.081E 01	2.353E 02	2.476E-03	4.573E-02
4.874E 01	9.645E 00	2.450E 02	3.322E-03	2.990E-02
4.875E 01	1.575E-01	2.451E 02	2.721E-03	3.682E-02
4.928E 01	7.172E 00	2.523E 02	2.574E-03	3.430E-02
5.069E 01	1.637E 01	2.687E 02	2.508E-03	3.744E-02
5.279E 01	2.030E 01	2.890E 02	2.446E-03	2.851E-02
5.329E 01	4.377E 00	2.933E 02	2.396E-03	2.782E-02
5.404E 01	6.243E 00	2.996E 02	2.360E-03	2.515E-02
5.480E 01	6.054E 00	3.056E 02	2.331E-03	2.225E-02
5.576E 01	7.267E 00	3.129E 02	2.307E-03	2.062E-02
5.623E 01	2.207E 00	3.151E 02	2.340E-03	1.842E-02
5.628E 01	3.279E-01	3.154E 02	2.258E-03	1.472E-02
5.642E 01	8.261E-01	3.163E 02	2.245E-03	1.464E-02
5.650E 01	4.872E-01	3.167E 02	2.454E-03	1.730E-02
5.678E 01	1.688E 00	3.184E 02	2.278E-03	1.788E-02
5.701E 01	1.304E 00	3.197E 02	2.244E-03	1.795E-02
5.773E 01	4.119E 00	3.239E 02	2.226E-03	1.763E-02
5.875E 01	5.800E 00	3.297E 02	2.196E-03	1.472E-02
6.076E 01	1.215E 01	3.418E 02	2.231E-03	8.880E-03
6.218E 01	9.081E 00	3.509E 02	2.345E-03	1.528E-02
6.464E 01	1.453E 01	3.654E 02	2.318E-03	2.257E-02
6.502E 01	2.018E 00	3.674E 02	2.483E-03	2.052E-02
6.506E 01	2.148E-01	3.676E 02	2.531E-03	2.077E-02
6.526E 01	1.085E 00	3.687E 02	2.532E-03	2.084E-02
6.692E 01	8.342E 00	3.771E 02	2.423E-03	1.525E-02
6.759E 01	2.762E 00	3.798E 02	2.388E-03	1.370E-02
6.836E 01	2.895E 00	3.827E 02	2.336E-03	1.149E-02
6.988E 01	2.472E 00	3.852E 02	2.320E-03	1.102E-02
6.969E 01	1.938E 00	3.871E 02	2.282E-03	9.528E-03
7.064E 01	2.382E 00	3.895E 02	2.171E-03	6.100E-03
7.107E 01	8.666E-01	3.904E 02	2.155E-03	5.741E-03
7.260E 01	2.894E 00	3.933E 02	2.132E-03	5.322E-03
7.275E 01	2.548E-01	3.935E 02	2.117E-03	4.995E-03
7.350E 01	1.037E 00	3.946E 02	2.030E-03	3.416E-03
7.350E 01	1.655E-03	3.946E 02	2.029E-03	3.407E-03
7.483E 01	4.999E-01	3.951E 02	1.998E-03	2.996E-03
7.768E 01	8.585E-01	3.959E 02	1.972E-03	2.758E-03
8.158E 01	8.833E-01	3.968E 02	1.962E-03	2.759E-03
8.439E 01	4.923E-01	3.973E 02	1.984E-03	3.196E-03
8.725E 01	2.168E-01	3.975E 02	1.972E-03	3.141E-03
8.726E 01	0.000	3.975E 02	1.972E-03	3.141E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-162.	(LBF)
MEASURED THRUST	-394.	(LBF)
CALCULATED SPECIFIC IMPULSE	-338.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-821.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.0563	
MEASURED THRUST COEFFICIENT	-.1368	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5008.	(LBF)
NET THRUST	-169.	(LBF)
SPECIFIC IMPULSE	-352.	(LBF-SEC/LBM)
THRUST COEFFICIENT	-.0586	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.7	(LBF)
INLET MOMENTUM CHANGE	-965.7	(LBF)
COMBUSTOR FRICTION DRAG	249.8	(LBF)
COMBUSTOR STRUT DRAG	5.99	(LBF)
COMBUSTOR MOMENTUM CHANGE	127.	(LBF)
NOZZLE FRICTION DRAG	30.09	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	676.	(LBF)
NOZZLE PRESSURE INTEGRAL	706.	(LBF)
EXTERNAL FRICTION DRAG	53.50	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1283.	(LBF)
TOTAL EXTERNAL DRAG	-1337.	(LBF)
TOTAL STRUT DRAG	5.99	(LBF)
CAVITY FORCE	-1265.	(LBF)
CALCULATED LOAD CELL FORCE	-2764.	(LBF)
MEASURED LOAD CELL FORCE	-2996.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE -122.8,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2809	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.165	(IN)
NOZZLE SHROUD TRAILING EDGE	73.505	(IN)
NOZZLE PLUG TRAILING EDGE	87.257	(IN)
STRUT LEADING EDGE	56.421	(IN)
STRUT TRAILING EDGE	65.021	(IN)
COMBUSTOR EXIT	65.021	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8659	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2775	
DELTA PT2	0.1407	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4418	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2824	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9009	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9163	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9302	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8982	
ENTHALPY AT PO - SUPERSONIC	-15.28	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	0.28	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0147
EQUIVALENCE RATIO	0.487
COMBUSTOR EFFICIENCY	0.080
TOTAL PRESSURE RATIO	0.2255
COMBUSTOR EFFECTIVENESS	0.2725

INJECTOR DISCHARGE COEFFICIENTS 0.7424,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9735
NOZZLE COEFFICIENT - CT	0.9140
PROCESS EFFICIENCY	0.9067
KINETIC ENERGY EFFICIENCY	0.9422

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.266	
1C	44.300	
2A	48.741	D
2C	46.250	
3A	54.031	
3B	56.216	
4	44.766	

Reading 94

t = 150.34 sec.

READING = 0094 BLOCK = 51 TIME = 150.342 MACH 5.2 PT = 417.499 TT = 2230.0

1-27-75
Reg. Corrected

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMIP	G	IVAC	PHI	ETAC
WIND TUNNEL 1 0 4																		
0.000	417.499	2230	444.3(	573)	1.3184	28.866	2250											
0.000	0.586	376	-38.9(	90)	1.3983	28.866	951	5.170	4917	1.781	0.14334	31.790	0.8659	4988	10.953	156.9		
SPIKE TIP NS 2 0 6																		
0.600	21.387	2230	444.3(	573)	1.3184	28.866	2250											
0.600	19.396	2178	429.4(	558)	1.3202	28.866	2225	0.367	862	1.985	0.14334	31.790	0.8659	5153	1.919	162.1		
WIND TUNNEL 3 0 0																		
0.000	417.499	2230	444.3(	573)	1.3184	28.866	2250											
0.000	0.622	382	-37.4(	92)	1.3984	28.866	959	5.119	4909	1.781	0.14927	33.104	0.8659	5189	11.388	156.7		
SPIKE TIP NS 4 0 0																		
0.600	21.387	2230	444.3(	573)	1.3184	28.866	2250											
0.600	19.203	2173	427.9(	557)	1.3204	28.866	2223	0.407	904	1.985	0.14927	33.104	0.8659	5189	2.097	156.7		
INLET THROAT 5 0 4																		
40.400	191.492	2174	428.3(	557)	1.3203	28.866	2223											
40.400	20.263	1227	171.1(	300)	1.3651	28.866	1698	2.112	3587	1.827	1.10677	33.104	0.1121	4273	64.248	129.1		
INLET UPNRSK 6 0 3																		
40.400	191.492	2174	428.3(	557)	1.3203	28.866	2223											
40.400	18.415	1196	163.1(	292)	1.3671	28.866	1678	2.171	3642	1.827	1.04774	33.104	0.1234	4329	59.306	130.6		
INLET DNNRSK 7 0 4																		
40.400	119.265	2174	428.3(	557)	1.3204	28.866	2223											
40.400	98.577	2075	400.4(	529)	1.3238	28.866	2175	0.543	1181	1.860	1.04774	33.104	0.1234	4329	19.225	130.6		
COMBUSTOR 0 8 1 4																		
40.410	191.395	2174	428.2(	557)	1.3203	28.866	2223											
40.410	21.770	1251	177.3(	307)	1.3636	28.866	1714	2.068	3544	1.827	1.15237	33.104	0.1122	4272	63.465	129.0		
COMBUSTOR 0 9 2 4																		
41.276	160.536	2166	426.2(	555)	1.3206	28.866	2220											
41.276	25.247	1358	205.1(	334)	1.3570	28.866	1781	1.867	3326	1.838	1.15531	33.104	0.1119	4146	59.717	125.2		
COMBUSTOR 0 10 3 4																		
41.341	158.530	2166	426.0(	555)	1.3206	28.866	2220											
41.341	25.558	1366	207.3(	337)	1.3565	28.866	1787	1.852	3308	1.839	1.15598	33.104	0.1118	4136	59.428	124.9		
COMBUSTOR 0 11 4 4																		
41.500	153.883	2164	425.6(	555)	1.3207	28.866	2219											
41.500	26.344	1387	212.7(	342)	1.3553	28.866	1799	1.814	3264	1.841	1.15798	33.104	0.1116	4111	58.730	124.2		
COMBUSTOR 0 12 5 5																		
42.460	136.667	2155	422.9(	552)	1.3210	28.866	2214											
42.460	28.958	1459	231.8(	361)	1.3510	28.866	1843	1.678	3092	1.848	1.14591	33.104	0.1128	4017	55.054	121.4		
COMBUSTOR 0 13 6 4																		
44.061	124.895	2138	418.1(	547)	1.3216	28.866	2206											
44.061	29.599	1490	239.9(	369)	1.3493	28.866	1861	1.605	2986	1.852	1.10810	33.104	0.1166	3956	51.415	119.5		
COMBUSTOR 0 14 7 4																		
44.310	123.676	2135	417.4(	546)	1.3217	28.866	2205											
44.310	29.817	1495	241.2(	370)	1.3490	28.866	1863	1.593	2969	1.852	1.10653	33.104	0.1168	3947	51.055	119.2		
COMBUSTOR 0 15 8 4																		
44.776	121.451	2131	416.1(	549)	1.3218	28.866	2203											
44.776	30.160	1503	243.4(	373)	1.3486	28.866	1868	1.574	2940	1.853	1.10227	33.104	0.1173	3931	50.365	118.7		
COMBUSTOR 0 16 9 4																		
44.800	121.328	2131	416.1(	545)	1.3219	28.866	2202											
44.800	30.193	1503	243.4(	373)	1.3486	28.866	1868	1.573	2939	1.853	1.10159	33.104	0.1173	3930	50.318	118.7		
COMBUSTOR 0 17 10 3																		
46.260	117.144	2119	412.8(	542)	1.3223	28.866	2197											
46.260	27.369	1470	234.8(	364)	1.3504	28.866	1849	1.614	2984	1.854	1.03758	33.104	0.1246	3944	46.120	119.1		
COMBUSTOR 0 18 11 5																		
47.301	119.477	2111	410.6(	540)	1.3225	28.866	2193											
47.301	22.940	1392	214.0(	343)	1.3550	28.866	1802	1.741	3137	1.852	0.96575	33.104	0.1338	4013	47.074	121.2		

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                 P      T       H          GAMMA  MOLWT  SONV  MACH  VEL   S       V/A       W      A/AC    MOMTM   G       IVAL  PHI  ETAC
COMBUSTOR        0     19     12     5
47.310     119.503   2111   410.6( 540)  1.3225 26.866 2193
47.310      22.931   1391   213.9( 343)  1.3550 26.866 1802 1.741 3137 1.852 0.96569 33.104 0.1336   4014 47.077 121.2
COMBUSTOR        0     20     13     9
48.110     125.095   2103   408.3( 537)  1.3228 26.866 2189
48.110      19.052   1304   191.0( 329)  1.3603 26.866 1748 1.867 3297 1.847 0.90009 33.104 0.1436   4093 46.125 123.7
COMBUSTOR        0     21     14    10
48.741      82.869   2212   435.5( 668)  1.3231 24.452 2440
48.741      43.346   1864   327.8( 560)  1.3352 24.452 2262 1.026 2321 2.165 0.84492 33.567 0.1552   4146 30.477 123.4 0.49 0.11
COMBUSTOR        0     22     15     2
48.751      82.802   2215   435.4( 668)  1.3230 24.454 2441
48.751      43.408   1887   328.0( 561)  1.3351 24.454 2263 1.024 2319 2.165 0.84383 33.567 0.1554   4148 30.406 123.5 0.49 0.11
COMBUSTOR        0     23     16     4
49.281      79.876   2343   432.6( 709)  1.3169 24.583 2498
49.281      46.637   2056   337.0( 614)  1.3272 24.583 2349 0.931 2187 2.183 0.78918 33.587 0.1662   4267 26.817 127.1 0.49 0.17
COMBUSTOR        0     24     17     5
50.691      73.031   2735   424.5( 835)  1.2987 24.987 2659
50.691      40.950   2389   306.8( 719)  1.3104 24.987 2496 0.972 2427 2.227 0.67260 33.587 0.1950   4579 25.371 130.3 0.49 0.35
COMBUSTOR        0     25     18     5
52.791      65.398   3179   412.5( 984)  1.2776 25.370 2821
52.791      30.900   2691   240.4( 816)  1.2942 25.372 2613 1.123 2934 2.275 0.55313 33.700 0.2379   4956 25.222 147.1 0.50 0.56
COMBUSTOR        0     26     19     3
53.291      64.417   3233   410.2(1002)  1.2749 25.434 2838
53.291      42.033   2954   310.5( 905)  1.2845 25.436 2723 0.820 2233 2.280 0.53053 33.700 0.2480   5048 18.415 149.8 0.50 0.59
COMBUSTOR        0     27     20     5
54.031      62.322   3101   418.7(1025)  1.2831 23.571 2897
54.031      41.539   2832   317.3( 926)  1.2922 23.572 2778 0.811 2252 2.405 0.50393 33.933 0.2629   5173 17.639 152.4 0.73 0.41
COMBUSTOR        0     28     21     2
54.041      62.300   3103   418.6(1026)  1.2830 23.573 2898
54.041      41.524   2834   317.2( 927)  1.2921 23.574 2779 0.811 2253 2.405 0.50355 33.933 0.2631   5175 17.632 152.5 0.73 0.41
COMBUSTOR        0     29     22     4
54.801      60.684   3314   414.9(1101)  1.2727 23.792 2969
54.801      40.400   3034   307.1( 996)  1.2824 23.795 2851 0.815 2322 2.422 0.47618 33.933 0.2782   5328 17.186 157.0 0.73 0.48
COMBUSTOR        0     30     23     4
55.760      59.494   3490   410.0(1163)  1.2636 23.985 3023
55.760      41.514   3234   309.8(1067)  1.2728 23.988 2921 0.766 2239 2.434 0.44611 33.933 0.2970   5519 15.522 162.6 0.73 0.54
COMBUSTOR        0     31     24     4
56.216      55.679   3909   416.5(1399)  1.2414 22.893 3246
56.216      42.044   3699   323.6(1314)  1.2502 22.903 3169 0.680 2154 2.593 0.36286 34.166 0.3676   6246 12.148 182.8 0.96 0.58
COMBUSTOR        0     32     25     2
56.226      55.679   3911   416.4(1400)  1.2413 22.895 3247
56.226      42.055   3702   323.8(1315)  1.2500 22.906 3169 0.679 2154 2.593 0.36266 34.166 0.3678   6249 12.139 182.9 0.96 0.58
COMBUSTOR        0     33     26     4
56.281      55.312   4017   416.2(1441)  1.2345 23.005 3274
56.281      41.035   3794   315.5(1350)  1.2442 23.020 3193 0.703 2244 2.599 0.36158 34.166 0.3689   6261 12.612 183.2 0.96 0.61
COMBUSTOR        0     34     27     3
56.421      55.211   4038   415.5(1449)  1.2331 23.029 3279
56.421      41.116   3818   315.7(1359)  1.2427 23.044 3200 0.699 2235 2.600 0.35892 34.166 0.3717   6288 12.466 184.0 0.96 0.62
COMBUSTOR        0     35     28     6
56.501      56.185   3996   415.1(1433)  1.2359 22.986 3268
56.501      42.375   3785   320.3(1347)  1.2450 22.999 3192 0.662 2178 2.596 0.36293 34.166 0.3675   6302 12.286 184.5 0.96 0.60
COMBUSTOR        0     36     29     4
56.781      56.490   4053   413.8(1455)  1.2322 23.049 3282
56.781      42.700   3844   318.6(1369)  1.2414 23.064 3207 0.661 2183 2.598 0.36186 34.166 0.3686   6350 12.275 185.6 0.96 0.62
COMBUSTOR        0     37     30     4
57.007      56.664   4113   412.7(1478)  1.2262 23.114 3296
57.007      42.771   3903   315.9(1392)  1.2376 23.131 3222 0.683 2202 2.600 0.36112 34.166 0.3694   6364 12.355 186.9 0.96 0.64
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REACTION = [illegible]194  BLOCK = 51  TIME = 15[illegible].342  [illegible]ACH  5.2  FI = 417.499  TI = 2230.[illegible]          PAGE  3

                  P      T     H           GAMMA  MOLWT  SONV  MACH  VEL   S     W/A              A/AC    MOPIM  U      IVAC  PHI  ETAC
COMBUSTOR             0  36    31   4
57.731        56.710  4231  409.3(1524)  1.2198  23.247  3322
57.731        43.000  4025  311.7(1439)  1.2293  23.270  3252  0.680  2210  2.605  0.35545  34.166  0.3755   6460  12.206  189.7  0.96  0.68
COMBUSTOR             0  39    32   4
58.751        56.899  4362  404.7(1574)  1.2099  23.398  3349
58.751        42.975  4156  303.3(1489)  1.2197  23.430  3280  0.667  2253  2.608  0.35319  34.166  0.3777   6549  12.365  191.7  0.96  0.73
COMBUSTOR             0  40    33   5
60.761        57.035  4677  396.1(1697)  1.1828  23.704  3402
60.761        39.112  4421  252.9(1590)  1.1945  23.846  3318  0.807  2677  2.616  0.36548  34.166  0.3650   6499  15.205  190.2  0.96  0.85
COMBUSTOR             0  41    34   4
62.181        57.514  4757  390.1(1728)  1.1752  23.866  3413
62.181        36.300  4454  214.1(1600)  1.1863  23.962  3312  0.896  2968  2.616  0.37539  34.166  0.3553   6455  17.515  186.9  0.96  0.90
SONIC THROAT            42    35 202
62.181        61.984  4942  390.1(1801)  1.1549  24.065  3441
62.181        36.306  4618  179.7(1663)  1.1669  24.250  3327  0.975  3244  2.609  0.37539  34.166  0.3553   6749  18.927  197.5  0.96  1.00
COMBUSTOR  REGEN        43    36   5
62.181        57.514  4806  424.2(1749)  1.1723  23.833  3428
62.181        34.651  4479  230.6(1611)  1.1858  23.967  3319  0.937  3111  2.623  0.37539  34.166  0.3553   6475  18.147  189.5  0.96  0.90
NOZZLE  AE              44    37   4
87.257        57.514  4757  390.1(1715)  1.1752  23.866  3413
87.257         1.434  2309  -685.9( 780)  1.2838  24.158  2513  2.920  7338  2.616  0.06886  34.166  1.9372   8504   7.852  248.9  0.96  0.9
NOZZLE  PU              45    38   4
87.257        57.514  4757  390.1(1715)  1.1752  23.866  3413
87.257         0.622  1978  -835.8( 630)  1.3002  24.156  2301  3.404  7832  2.616  0.03848  34.166  3.4670   8869   4.683  259.6  0.96  0.90
NOZZLE  AE REGEN        46    39   4
87.257        57.514  4806  424.2(1749)  1.1723  23.833  3428
87.257         1.458  2444  -665.4( 800)  1.2818  24.158  2539  2.908  7384  2.623  0.06886  34.166  1.9372   8565   7.902  250.7  0.96  0.90
NOZZLE  PU REGEN        47    40   4
87.257        57.514  4806  424.2(1749)  1.1723  23.833  3428
87.257         0.622  2018  -821.5( 645)  1.2905  24.156  2322  3.440  7895  2.623  0.03802  34.166  3.5086   8943   4.665  261.7  0.96  0.90
FICTIVE COMBUSTR        69    62   0
62.181       191.492  5049  390.1(1844)  1.1707  24.182  3486
62.181         0.622  1663-1101.9( 515)  1.3113  24.593  2100  4.115  8640  2.516  0.05140  34.166  2.5953   9589   6.902  280.6  0.96  1.00
FICTIVE NOZZLE          70    63   0
87.257        28.510  4650  351.9(1684)  1.1706  23.646  3369
87.257         1.998  2927  -480.1( 984)  1.2642  24.155  2760  2.338  6452  2.666  0.06886  34.166  1.9371   7843   6.905  229.6  0.96  0.90
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XABS	P-1B	P-0B	FCA	FUA	G-1B	G-0B	CANALL	P-1B/PSU	P-1B/PTO	P-0B/PSU	P-0B/PTO
6.981E-01	1.410E 00	0.000	-5.233E-01	0.000	0.000	0.000	2.470E-02	2.268E 00	3.377E-03	0.000	0.000
1.836E 01	1.410E 00	0.000	-1.600E 01	0.000	0.000	0.000	1.634E 02	2.268E 00	3.377E-03	0.000	0.000
3.070E 01	2.565E 00	0.000	-2.680E 02	0.000	0.000	0.000	5.053E 02	4.127E 00	6.144E-03	0.000	0.000
3.508E 01	4.249E 00	0.000	-4.288E 02	0.000	0.000	0.000	6.604E 02	6.836E 00	1.018E-02	0.000	0.000
3.516E 01	4.272E 00	6.054E 00	-4.947E 02	0.000	0.000	0.000	6.839E 02	6.872E 00	1.023E-02	9.739E 00	1.450E-02
3.516E 01	4.273E 00	6.033E 00	-4.948E 02	0.000	0.000	0.000	6.842E 02	6.875E 00	1.024E-02	9.706E 00	1.445E-02
3.555E 01	4.385E 00	4.713E 00	-5.031E 02	0.000	0.000	0.000	7.228E 02	7.055E 00	1.050E-02	7.583E 00	1.129E-02
3.583E 01	4.393E 00	3.750E 00	-5.145E 02	-2.882E 02	-2.882E 02	0.000	7.513E 02	7.068E 00	1.052E-02	6.033E 00	8.982E-03
3.606E 01	4.400E 00	5.188E 00	-5.238E 02	-2.920E 02	-2.920E 02	0.000	7.748E 02	7.079E 00	1.054E-02	8.346E 00	1.243E-02
3.648E 01	4.827E 00	7.823E 00	-5.366E 02	-2.992E 02	-2.992E 02	0.000	8.185E 02	7.767E 00	1.156E-02	1.259E 01	1.874E-02
3.701E 01	4.582E 00	1.115E 01	-5.502E 02	-3.378E 02	-3.086E 02	-2.914E 01	8.745E 02	7.373E 00	1.098E-02	1.794E 01	2.671E-02
3.729E 01	5.909E 00	1.291E 01	-5.576E 02	-3.516E 02	-3.139E 02	-3.772E 01	9.046E 02	9.506E 00	1.415E-02	2.077E 01	3.093E-02
3.803E 01	9.397E 00	1.545E 01	-6.129E 02	-3.883E 02	-3.284E 02	-5.986E 01	9.854E 02	1.512E 01	2.251E-02	2.485E 01	3.700E-02
3.831E 01	1.231E 01	1.641E 01	-6.394E 02	-4.027E 02	-3.345E 02	-6.821E 01	1.017E 03	1.981E 01	2.949E-02	2.641E 01	3.931E-02
3.875E 01	1.687E 01	1.663E 01	-6.908E 02	-4.264E 02	-3.451E 02	-8.122E 01	1.066E 03	2.713E 01	4.040E-02	2.676E 01	3.984E-02
3.878E 01	1.719E 01	1.665E 01	-6.944E 02	-4.281E 02	-3.460E 02	-8.213E 01	1.070E 03	2.765E 01	4.117E-02	2.679E 01	3.988E-02
3.901E 01	1.956E 01	1.739E 01	-7.184E 02	-4.411E 02	-3.522E 02	-8.888E 01	1.096E 03	3.147E 01	4.686E-02	2.798E 01	4.166E-02
3.929E 01	1.910E 01	1.830E 01	-7.432E 02	-4.577E 02	-3.605E 02	-9.714E 01	1.128E 03	3.073E 01	4.576E-02	2.944E 01	4.383E-02
3.950E 01	1.876E 01	1.300E 01	-7.574E 02	-4.704E 02	-3.672E 02	-1.032E 02	1.153E 03	3.019E 01	4.494E-02	2.091E 01	3.113E-02
3.978E 01	1.984E 01	5.875E 00	-7.823E 02	-4.882E 02	-3.769E 02	-1.113E 02	1.185E 03	3.193E 01	4.753E-02	9.452E 00	1.407E-02
4.000E 01	2.069E 01	5.734E 00	-8.064E 02	-5.025E 02	-3.850E 02	-1.175E 02	1.211E 03	3.328E 01	4.955E-02	9.226E 00	1.373E-02
4.040E 01	2.382E 01	5.478E 00	-8.517E 02	-5.297E 02	-4.010E 02	-1.287E 02	1.258E 03	3.832E 01	5.706E-02	8.812E 00	1.312E-02
4.041E 01	2.390E 01	5.471E 00	-8.527E 02	-5.303E 02	-4.014E 02	-1.290E 02	1.259E 03	3.845E 01	5.724E-02	8.802E 00	1.310E-02
4.128E 01	3.068E 01	4.915E 00	-9.643E 02	-5.981E 02	-4.402E 02	-1.579E 02	1.361E 03	4.936E 01	7.349E-02	7.908E 00	1.177E-02
4.134E 01	3.119E 01	4.873E 00	-9.733E 02	-6.038E 02	-4.433E 02	-1.604E 02	1.369E 03	5.018E 01	7.471E-02	7.841E 00	1.167E-02
4.150E 01	3.244E 01	5.678E 00	-9.952E 02	-6.179E 02	-4.513E 02	-1.667E 02	1.388E 03	5.219E 01	7.769E-02	9.136E 00	1.360E-02
4.246E 01	1.980E 01	1.053E 01	-1.073E 03	-7.086E 02	-5.023E 02	-2.063E 02	1.503E 03	3.185E 01	4.743E-02	1.694E 01	2.523E-02
4.406E 01	2.550E 01	1.863E 01	-1.109E 03	-8.670E 02	-5.885E 02	-2.785E 02	1.697E 03	4.102E 01	6.107E-02	2.997E 01	4.462E-02
4.431E 01	2.638E 01	1.985E 01	-1.114E 03	-8.910E 02	-6.014E 02	-2.896E 02	1.727E 03	4.244E 01	6.319E-02	3.194E 01	4.755E-02
4.478E 01	2.804E 01	2.215E 01	-1.123E 03	-9.320E 02	-6.252E 02	-3.067E 02	1.784E 03	4.511E 01	6.716E-02	3.563E 01	5.305E-02
4.480E 01	2.813E 01	2.227E 01	-1.123E 03	-9.340E 02	-6.265E 02	-3.075E 02	1.787E 03	4.525E 01	6.737E-02	3.582E 01	5.333E-02
4.626E 01	2.875E 01	2.945E 01	-1.088E 03	-1.043E 03	-7.010E 02	-3.423E 02	1.966E 03	4.625E 01	6.885E-02	4.738E 01	7.054E-02
4.730E 01	2.919E 01	3.457E 01	-1.003E 03	-1.114E 03	-7.551E 02	-3.593E 02	2.095E 03	4.696E 01	6.992E-02	5.563E 01	8.281E-02
4.731E 01	2.919E 01	3.463E 01	-1.003E 03	-1.115E 03	-7.556E 02	-3.594E 02	2.096E 03	4.697E 01	6.993E-02	5.571E 01	8.295E-02
4.811E 01	4.699E 01	3.950E 01	-9.118E 02	-1.191E 03	-7.977E 02	-3.932E 02	2.196E 03	7.560E 01	1.125E-01	6.356E 01	9.462E-02
4.874E 01	4.335E 01	4.335E 01	-7.903E 02	-1.281E 03	-8.313E 02	-4.492E 02	2.275E 03	6.974E 01	1.038E-01	6.974E 01	1.038E-01
4.875E 01	4.341E 01	4.341E 01	-7.881E 02	-1.282E 03	-8.319E 02	-4.503E 02	2.276E 03	6.984E 01	1.040E-01	6.984E 01	1.040E-01
4.928E 01	4.664E 01	4.664E 01	-6.637E 02	-1.378E 03	-8.603E 02	-5.181E 02	2.343E 03	7.503E 01	1.117E-01	7.503E 01	1.117E-01
5.069E 01	4.095E 01	4.095E 01	-3.399E 02	-1.648E 03	-9.372E 02	-7.110E 02	2.520E 03	6.588E 01	9.808E-02	6.588E 01	9.808E-02
5.279E 01	3.090E 01	3.090E 01	5.563E 01	-2.005E 03	-1.055E 03	-9.502E 02	2.787E 03	4.971E 01	7.401E-02	4.971E 01	7.401E-02
5.329E 01	4.263E 01	4.263E 01	1.512E 02	-2.084E 03	-1.083E 03	-1.001E 03	2.850E 03	6.859E 01	1.021E-01	6.859E 01	1.021E-01
5.403E 01	4.154E 01	4.154E 01	3.119E 02	-2.204E 03	-1.126E 03	-1.079E 03	2.945E 03	6.683E 01	9.949E-02	6.683E 01	9.949E-02
5.404E 01	4.152E 01	4.152E 01	3.140E 02	-2.206E 03	-1.126E 03	-1.080E 03	2.946E 03	6.681E 01	9.946E-02	6.681E 01	9.946E-02
5.480E 01	4.040E 01	4.040E 01	4.728E 02	-2.333E 03	-1.170E 03	-1.162E 03	3.044E 03	6.500E 01	9.677E-02	6.500E 01	9.677E-02
5.576E 01	4.151E 01	4.151E 01	6.697E 02	-2.496E 03	-1.227E 03	-1.271E 03	3.167E 03	6.679E 01	9.944E-02	6.679E 01	9.944E-02
5.622E 01	4.204E 01	4.204E 01	1.399E 03	-2.576E 03	-1.251E 03	-1.325E 03	3.208E 03	6.764E 01	1.007E-01	6.764E 01	1.007E-01
5.623E 01	4.206E 01	4.206E 01	1.402E 03	-2.577E 03	-1.251E 03	-1.326E 03	3.209E 03	6.766E 01	1.007E-01	6.766E 01	1.007E-01
5.628E 01	3.995E 01	4.212E 01	1.413E 03	-2.586E 03	-1.254E 03	-1.332E 03	3.217E 03	6.427E 01	9.569E-02	6.776E 01	1.009E-01
5.642E 01	3.995E 01	4.228E 01	1.441E 03	-2.609E 03	-1.260E 03	-1.349E 03	3.234E 03	6.427E 01	9.569E-02	6.802E 01	1.013E-01
5.650E 01	4.237E 01	4.237E 01	1.458E 03	-2.623E 03	-1.264E 03	-1.359E 03	3.245E 03	6.817E 01	1.015E-01	6.817E 01	1.015E-01
5.678E 01	4.270E 01	4.270E 01	1.514E 03	-2.668E 03	-1.277E 03	-1.391E 03	3.280E 03	6.870E 01	1.023E-01	6.870E 01	1.023E-01
5.701E 01	4.277E 01	4.277E 01	1.555E 03	-2.705E 03	-1.287E 03	-1.418E 03	3.309E 03	6.881E 01	1.024E-01	6.881E 01	1.024E-01
5.773E 01	4.300E 01	4.300E 01	1.671E 03	-2.821E 03	-1.321E 03	-1.501E 03	3.402E 03	6.918E 01	1.030E-01	6.918E 01	1.030E-01
5.875E 01	4.297E 01	4.297E 01	1.771E 03	-2.978E 03	-1.368E 03	-1.609E 03	3.532E 03	6.914E 01	1.029E-01	6.914E 01	1.029E-01
6.076E 01	3.911E 01	3.911E 01	1.781E 03	-3.273E 03	-1.466E 03	-1.807E 03	3.790E 03	6.293E 01	9.368E-02	6.293E 01	9.368E-02
6.218E 01	3.630E 01	3.630E 01	1.781E 03	-3.479E 03	-1.544E 03	-1.935E 03	3.972E 03	5.840E 01	8.695E-02	5.840E 01	8.695E-02

READING = 0094 BLOCK = 51 TIME = 150.342 MACH 5.2 PT = 417.499 TT = 2230.0

XABS	P-IB	P-OB	HCA	GOX	Q-IB	Q-OB	CA-ALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.464E 01	2.736E 01	2.736E 01	1.781E 03	-3.857E 03	-1.710E 03	-2.147E 03	4.289E 03	4.402E 01	6.553E-02	4.402E 01	6.553E-02
6.502E 01	2.502E 01	2.600E 01	1.781E 03	-3.918E 03	-1.739E 03	-2.179E 03	4.337E 03	4.026E 01	5.994E-02	4.182E 01	6.227E-02
6.506E 01	2.902E 01	2.585E 01	1.781E 03	-3.924E 03	-1.742E 03	-2.183E 03	4.342E 03	4.026E 01	5.994E-02	4.159E 01	6.192E-02
6.526E 01	2.361E 01	2.512E 01	1.781E 03	-3.956E 03	-1.757E 03	-2.199E 03	4.368E 03	3.798E 01	5.654E-02	4.042E 01	6.018E-02
6.692E 01	1.184E 01	1.020E 01	1.977E 03	-4.173E 03	-1.866E 03	-2.307E 03	4.584E 03	1.904E 01	2.835E-02	1.641E 01	2.443E-02
6.759E 01	9.066E 00	1.051E 01	2.188E 03	-4.243E 03	-1.901E 03	-2.342E 03	4.665E 03	1.459E 01	2.171E-02	1.692E 01	2.519E-02
6.836E 01	5.880E 00	8.487E 00	2.420E 03	-4.317E 03	-1.935E 03	-2.382E 03	4.760E 03	9.460E 00	1.408E-02	1.365E 01	2.033E-02
6.908E 01	4.884E 00	6.590E 00	2.585E 03	-4.382E 03	-1.962E 03	-2.420E 03	4.848E 03	7.657E 00	1.170E-02	1.060E 01	1.578E-02
6.969E 01	4.040E 00	4.492E 00	2.693E 03	-4.452E 03	-1.982E 03	-2.450E 03	4.922E 03	6.500E 00	9.677E-03	7.227E 00	1.076E-02
7.064E 01	3.059E 00	1.225E 00	2.798E 03	-4.498E 03	-2.009E 03	-2.489E 03	5.036E 03	4.921E 00	7.327E-03	1.971E 00	2.934E-03
7.107E 01	2.615E 00	1.560E 00	2.830E 03	-4.524E 03	-2.019E 03	-2.504E 03	5.088E 03	4.207E 00	6.263E-03	2.509E 00	3.736E-03
7.260E 01	1.645E 00	2.750E 00	2.933E 03	-4.599E 03	-2.051E 03	-2.548E 03	5.273E 03	2.647E 00	3.940E-03	4.424E 00	6.587E-03
7.275E 01	1.550E 00	2.408E 00	2.942E 03	-4.605E 03	-2.053E 03	-2.552E 03	5.290E 03	2.494E 00	3.713E-03	3.873E 00	5.766E-03
7.350E 01	1.952E 00	6.950E-01	2.997E 03	-4.639E 03	-2.065E 03	-2.574E 03	5.374E 03	3.141E 00	4.676E-03	1.118E 00	1.665E-03
7.350E 01	1.954E 00	6.859E-01	2.999E 03	-4.639E 03	-2.065E 03	-2.574E 03	5.375E 03	3.144E 00	4.681E-03	1.103E 00	1.643E-03
7.483E 01	2.665E 00	0.000	3.047E 03	-4.702E 03	-2.083E 03	-2.619E 03	5.427E 03	4.288E 00	6.383E-03	0.000	0.000
7.768E 01	2.360E 00	0.000	3.148E 03	-4.724E 03	-2.110E 03	-2.619E 03	5.525E 03	3.797E 00	5.653E-03	0.000	0.000
8.158E 01	1.600E 00	0.000	3.232E 03	-4.749E 03	-2.129E 03	-2.619E 03	5.630E 03	2.574E 00	3.832E-03	0.000	0.000
8.439E 01	1.745E 00	0.000	3.270E 03	-4.762E 03	-2.142E 03	-2.619E 03	5.684E 03	2.807E 00	4.180E-03	0.000	0.000
8.725E 01	2.325E 00	0.000	3.319E 03	-4.764E 03	-2.165E 03	-2.619E 03	5.707E 03	3.741E 00	5.569E-03	0.000	0.000
8.726E 01	2.326E 00	0.000	3.319E 03	-4.764E 03	-2.165E 03	-2.619E 03	5.707E 03	3.743E 00	5.572E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.178E 02	1.176E 02	2.222E-03	5.009E-02
4.041E 01	1.680E-01	1.180E 02	2.232E-03	5.254E-02
4.128E 01	1.443E 01	1.324E 02	2.344E-03	5.605E-02
4.138E 01	1.082E 00	1.335E 02	2.353E-03	5.634E-02
4.150E 01	2.644E 00	1.361E 02	2.373E-03	5.707E-02
4.246E 01	1.576E 01	1.519E 02	2.446E-03	5.873E-02
4.406E 01	2.543E 01	1.773E 02	2.485E-03	5.790E-02
4.431E 01	3.863E 00	1.812E 02	2.494E-03	5.805E-02
4.478E 01	7.216E 00	1.884E 02	2.511E-03	5.825E-02
4.480E 01	3.722E-01	1.888E 02	2.511E-03	5.823E-02
4.626E 01	2.212E 01	2.109E 02	2.499E-03	5.435E-02
4.730E 01	1.514E 01	2.260E 02	2.429E-03	4.873E-02
4.731E 01	1.336E-01	2.262E 02	2.429E-03	4.871E-02
4.811E 01	1.103E 01	2.372E 02	2.319E-03	4.298E-02
4.874E 01	8.296E 00	2.455E 02	3.168E-03	5.205E-02
4.875E 01	1.127E-01	2.456E 02	2.744E-03	6.190E-02
4.928E 01	5.198E 00	2.508E 02	2.722E-03	6.143E-02
5.069E 01	1.251E 01	2.633E 02	2.680E-03	5.765E-02
5.279E 01	1.822E 01	2.815E 02	2.729E-03	4.847E-02
5.329E 01	4.010E 00	2.855E 02	3.038E-03	4.570E-02
5.403E 01	5.306E 00	2.908E 02	3.189E-03	4.299E-02
5.404E 01	7.011E-02	2.909E 02	3.028E-03	4.604E-02
5.480E 01	5.099E 00	2.960E 02	2.988E-03	4.585E-02
5.576E 01	6.087E 00	3.021E 02	3.051E-03	4.354E-02
5.622E 01	1.776E 00	3.039E 02	3.154E-03	3.919E-02
5.623E 01	4.920E-02	3.039E 02	3.196E-03	3.848E-02
5.628E 01	2.778E-01	3.042E 02	3.177E-03	3.904E-02
5.642E 01	7.114E-01	3.049E 02	3.207E-03	3.642E-02
5.650E 01	4.177E-01	3.053E 02	3.388E-03	3.570E-02
5.678E 01	1.442E 00	3.068E 02	3.193E-03	3.886E-02
5.701E 01	1.135E 00	3.079E 02	3.199E-03	3.890E-02
5.773E 01	3.638E 00	3.115E 02	3.198E-03	3.861E-02
5.875E 01	5.148E 00	3.167E 02	3.213E-03	3.864E-02
6.076E 01	1.133E 01	3.280E 02	3.163E-03	4.110E-02
6.218E 01	9.443E 00	3.375E 02	3.212E-03	4.074E-02
6.464E 01	1.984E 01	3.787E 02	3.244E-03	3.990E-02
6.502E 01	3.414E 00	3.821E 02	3.229E-03	3.901E-02
6.506E 01	3.674E-01	3.825E 02	3.229E-03	3.698E-02
6.526E 01	1.846E 00	3.844E 02	3.222E-03	3.840E-02
6.692E 01	1.486E 01	3.992E 02	3.098E-03	2.532E-02
6.759E 01	5.237E 00	4.045E 02	3.081E-03	2.346E-02
6.836E 01	5.984E 00	4.100E 02	3.037E-03	1.912E-02
6.908E 01	4.600E 00	4.146E 02	3.004E-03	1.635E-02
6.969E 01	3.405E 00	4.180E 02	2.965E-03	1.323E-02
7.064E 01	4.053E 00	4.221E 02	2.876E-03	7.922E-03
7.107E 01	1.472E 00	4.236E 02	2.872E-03	7.764E-03
7.260E 01	5.253E 00	4.288E 02	2.876E-03	6.600E-03
7.275E 01	4.833E-01	4.293E 02	2.861E-03	7.438E-03
7.350E 01	2.031E 00	4.313E 02	2.804E-03	5.442E-03
7.350E 01	3.397E-03	4.313E 02	2.804E-03	5.431E-03
7.483E 01	1.380E 00	4.327E 02	2.891E-03	9.292E-03
7.766E 01	3.063E 00	4.358E 02	2.863E-03	6.436E-03
8.158E 01	2.800E 00	4.386E 02	2.796E-03	6.222E-03
8.439E 01	1.311E 00	4.399E 02	2.795E-03	6.623E-03
8.725E 01	6.117E-01	4.405E 02	2.822E-03	6.216E-03
8.726E 01	0.000	4.405E 02	2.822E-03	6.220E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2601.	(LBF)
MEASURED THRUST	2535.	(LBF)
CALCULATED SPECIFIC IMPULSE	2695.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2626.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.8917	
MEASURED THRUST COEFFICIENT	0.8690	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	7899.	(LBF)
NET THRUST	2657.	(LBF)
SPECIFIC IMPULSE	2753.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.9110	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.8	(LBF)
INLET MOMENTUM CHANGE	-969.5	(LBF)
COMBUSTOR FRICTION DRAG	219.7	(LBF)
COMBUSTOR STRUT DRAG	139.16	(LBF)
COMBUSTOR MOMENTUM CHANGE	2182.	(LBF)
NOZZLE FRICTION DRAG	81.62	(LBF)
NOZZLE STRUT DRAG	68.61	(LBF)
NOZZLE MOMENTUM CHANGE	1388.	(LBF)
NOZZLE PRESSURE INTEGRAL	1538.	(LBF)
EXTERNAL FRICTION DRAG	53.57	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1328.	(LBF)
TOTAL EXTERNAL DRAG	-1381.	(LBF)
TOTAL STRUT DRAG	207.77	(LBF)
CAVITY FORCE	-1200.	(LBF)
CALCULATED LOAD CELL FORCE	19.	(LBF)
MEASURED LOAD CELL FORCE	-47.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -125.0, -130.6,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2809	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.165	(IN)
NOZZLE SHROUD TRAILING EDGE	73.505	(IN)
NOZZLE PLUG TRAILING EDGE	67.257	(IN)
STRUT LEADING EDGE	56.421	(IN)
STRUT TRAILING EDGE	65.021	(IN)
COMBUSTOR EXIT	62.181	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8659	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2807	
DELTA PT2	0.1408	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4587	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2857	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9063	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9165	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9262	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8927	
ENTHALPY AT PO - SUPERSONIC	-17.84	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-1.69	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0291
EQUIVALENCE RATIO	0.964
COMBUSTOR EFFICIENCY	0.895
TOTAL PRESSURE RATIO	0.3003
COMBUSTOR EFFECTIVENESS	0.8643
INJECTOR DISCHARGE COEFFICIENTS	0.7576, 0.8300, 0.6401,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9223
NOZZLE COEFFICIENT - CT	0.8496
PROCESS EFFICIENCY	0.8340
KINETIC ENERGY EFFICIENCY	0.8251

FUEL INJECTIONS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.266	
1C	44.300	
2A	48.741	D
2C	46.250	
3A	54.031	E
3B	56.216	E
4	44.766	

Reading 94

t = 157.54 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4															
0.000	417.249	2229	444.0(	573)	1.3184	28.866	2250											
0.000	0.586	375	-39.0(	90)	1.3983	28.866	951	5.170	4916	1.781	0.14331	31.783	0.8659	4986	10.948	156.9		
SPIKE TIP NS		2	0 6															
0.600	21.362	2229	444.0(	573)	1.3185	28.866	2250											
0.600	19.370	2177	429.1(	558)	1.3203	28.866	2225	0.388	862	1.985	0.14331	31.783	0.8659	5147	1.920	162.0		
WIND TUNNEL		3	0 0															
0.000	417.249	2229	444.0(	573)	1.3184	28.866	2250											
0.000	0.621	382	-37.5(	92)	1.3984	28.866	959	5.120	4908	1.781	0.14912	33.073	0.8659	5183	11.374	156.7		
SPIKE TIP NS		4	0 0															
0.600	21.362	2229	444.0(	573)	1.3185	28.866	2250											
0.600	19.180	2172	427.6(	557)	1.3204	28.866	2222	0.407	904	1.985	0.14912	33.073	0.8659	5183	2.095	156.7		
INLET THROAT		5	0 4															
40.400	190.976	2171	427.5(	556)	1.3204	28.866	2222											
40.400	20.270	1226	170.9(	300)	1.3652	28.866	1698	2.110	3583	1.827	1.10652	33.073	0.1121	4265	64.112	129.0		
INLET UPNRSK		6	0 3															
40.400	190.976	2171	427.5(	556)	1.3204	28.866	2222											
40.400	18.398	1195	162.8(	292)	1.3671	28.866	1677	2.170	3639	1.827	1.04675	33.073	0.1234	4322	59.194	130.7		
INLET DNNRSK		7	0 4															
40.400	119.047	2171	427.5(	556)	1.3205	28.866	2222											
40.400	98.383	2072	399.6(	529)	1.3239	28.866	2174	0.543	1180	1.860	1.04675	33.073	0.1234	4322	19.201	130.7		
COMBUSTOR		0 8	1 4															
40.410	190.863	2171	427.4(	556)	1.3204	28.866	2222											
40.410	21.752	1250	177.0(	306)	1.3637	28.866	1713	2.066	3540	1.827	1.15128	33.073	0.1122	4264	63.341	128.9		
COMBUSTOR		0 9	2 4															
41.276	160.046	2163	425.2(	554)	1.3207	28.866	2218											
41.276	25.228	1356	204.7(	334)	1.3571	28.866	1780	1.866	3322	1.838	1.15422	33.073	0.1119	4137	59.582	125.1		
COMBUSTOR		0 10	3 4															
41.341	158.056	2162	425.0(	554)	1.3207	28.866	2218											
41.341	25.536	1365	206.9(	336)	1.3566	28.866	1786	1.850	3304	1.839	1.15489	33.073	0.1118	4127	59.294	124.8		
COMBUSTOR		0 11	4 4															
41.500	153.446	2161	424.5(	553)	1.3208	28.866	2217											
41.500	26.317	1385	212.2(	341)	1.3554	28.866	1798	1.813	3259	1.841	1.15688	33.073	0.1116	4103	58.598	124.1		
COMBUSTOR		0 12	5 5															
42.460	130.319	2150	421.6(	551)	1.3212	28.866	2212											
42.460	28.908	1456	231.0(	360)	1.3512	28.866	1841	1.677	3087	1.848	1.14482	33.073	0.1128	4009	54.929	121.2		
COMBUSTOR		0 13	6 4															
44.061	124.648	2131	416.3(	545)	1.3218	28.866	2203											
44.061	29.500	1485	238.5(	368)	1.3496	28.866	1858	1.606	2982	1.851	1.10705	33.073	0.1166	3947	51.307	119.3		
COMBUSTOR		0 14	7 4															
44.310	123.386	2129	415.5(	544)	1.3219	28.866	2201											
44.310	29.726	1489	239.8(	369)	1.3493	28.866	1860	1.594	2965	1.852	1.10548	33.073	0.1168	3937	50.936	119.0		
COMBUSTOR		0 15	8 4															
44.776	120.709	2124	414.1(	543)	1.3221	28.866	2199											
44.776	30.204	1500	242.7(	372)	1.3487	28.866	1867	1.569	2928	1.852	1.10123	33.073	0.1173	3917	50.115	118.4		
COMBUSTOR		0 16	9 4															
44.800	120.550	2124	414.1(	543)	1.3221	28.866	2199											
44.800	30.209	1501	242.8(	372)	1.3487	28.866	1867	1.568	2927	1.853	1.10055	33.073	0.1173	3916	50.059	118.4		
COMBUSTOR		0 17	10 4															
46.260	113.574	2111	410.6(	540)	1.3225	28.866	2193											
46.260	28.239	1489	239.6(	369)	1.3494	28.866	1860	1.573	2925	1.855	1.03640	33.073	0.1246	3908	47.121	118.2		
COMBUSTOR		0 18	11 4															
47.301	111.542	2104	408.4(	537)	1.3228	28.866	2189											
47.301	24.542	1436	225.7(	355)	1.3524	28.866	1829	1.653	3023	1.855	0.96484	33.073	0.1336	3949	45.325	119.4		

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

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                P        T     H          GAMMA  MOLWT  SONV  MACH   VEL    S     W/A      M     A/AC    [illegible] [illegible]  TVAC  PHI  ETAC
COMBUSTOR         0   19   12   4
47.310    111.556 2163   408.4( 537) 1.3228 28.866 2189
47.310     24.535 1436   225.7( 355) 1.3521 28.866 1829 1.653 3023 1.855 0.96478 33.073 0.1338   3949 45.327 119.4
COMBUSTOR         0   20   13   4
48.110    112.144 2097   406.7( 536) 1.3230 28.866 2186
48.110     21.028 1373   209.1( 338) 1.3561 28.866 1791 1.755 3144 1.854 0.89924 33.073 0.1436   4005 43.931 121.1
COMBUSTOR         0   21   14   4
48.751    112.945 2092   405.2( 534) 1.3232 28.866 2184
48.751     17.844 1309   192.4( 322) 1.3600 28.866 1751 1.864 3263 1.853 0.83090 33.073 0.1554   4065 42.140 122.9
COMBUSTOR         0   22   15   5
49.281    114.703 2088   404.1( 533) 1.3235 28.866 2182
49.281     15.495 1253   177.9( 307) 1.3635 28.866 1715 1.961 3364 1.851 0.77709 33.073 0.1662   4118 40.629 124.5
COMBUSTOR         0   23   16  11
50.691    137.408 2076   400.7( 530) 1.3238 28.866 2176
50.691     10.159 1058   128.1( 257) 1.3757 28.866 1583
                                                                2.332 3693 1.637 0.66230 33.073 0.1950   4363 38.008 130.1
COMBUSTOR         0   24   17 202
52.791     76.823 2135   393.7( 548) 1.3209 28.788 2207
52.791     44.400 1865   318.1( 473) 1.3308 28.788 2071 0.939 1945 1.893 0.54468 33.185 0.2379   4712 16.468 142.0 0.02 1.00
COMBUSTOR         0   25   18 200
53.291     74.211 2130   392.4( 547) 1.3211 28.788 2204
53.291     47.133 1905   329.2( 484) 1.3293 28.788 2092 0.850 1778 1.895 0.52242 33.165 0.2480   4828 14.437 145.5 0.02 1.00
COMBUSTOR         0   26   19   5
54.031     61.822 2669   422.0( 823) 1.3019 24.633 2648
54.031     47.534 2510   367.1( 769) 1.3072 24.633 2573 0.644 1657 2.256 0.50035 33.642 0.2629   4936 12.887 146.5 0.52 0.31
COMBUSTOR         0   27   20   2
54.041     61.812 2670   422.0( 823) 1.3018 24.634 2649
54.041     47.539 2512   367.1( 769) 1.3071 24.635 2574 0.644 1657 2.256 0.49997 33.692 0.2631   4939 12.874 146.6 0.52 0.31
COMBUSTOR         0   28   21   4
54.801     61.096 2795   419.3( 864) 1.2960 24.765 2697
54.801     47.950 2643   366.4( 812) 1.3011 24.766 2628 0.619 1626 2.267 0.47280 33.692 0.2782   5120 11.950 152.0 0.52 0.37
COMBUSTOR         0   29   22   4
55.760     59.807 3063   415.1( 953) 1.2834 25.050 2793
55.760     47.030 2904   358.3( 897) 1.2888 25.051 2725 0.619 1687 2.289 0.44294 33.692 0.2970   5344 11.613 158.6 0.52 0.49
COMBUSTOR         0   30   23   5
56.216     56.653 3100   442.6(1111) 1.2855 21.673 3024
56.216     46.592 2968   388.3(1058) 1.2900 21.674 2964 0.557 1650 2.578 0.36321 34.199 0.3676   6141  9.312 179.6 1.03 0.32
COMBUSTOR         0   31   24   2
56.226     56.648 3105   442.0(1112) 1.2853 21.677 3025
56.226     46.583 2972   388.1(1059) 1.2898 21.678 2965 0.557 1651 2.578 0.36302 34.199 0.3678   6144  9.316 179.6 1.03 0.32
COMBUSTOR         0   32   25   4
56.281     56.079 3280   442.3(1180) 1.2768 21.836 3088
56.281     45.215 3130   379.6(1119) 1.2821 21.837 3022 0.586 1773 2.593 0.36193 34.199 0.3689   6157  9.971 180.0 1.03 0.37
COMBUSTOR         0   33   26   3
56.421     55.996 3310   441.7(1191) 1.2753 21.866 3098
56.421     45.148 3160   378.6(1130) 1.2806 21.867 3033 0.586 1777 2.595 0.35927 34.199 0.3717   6166  9.921 180.9 1.03 0.38
COMBUSTOR         0   34   27   7
56.501     56.941 3265   441.3(1174) 1.2776 21.825 3083
56.501     46.319 3121   381.3(1116) 1.2826 21.826 3020 0.574 1733 2.590 0.36329 34.199 0.3675   6202  9.785 181.4 1.03 0.36
COMBUSTOR         0   35   28   4
56.781     57.048 3390   440.0(1222) 1.2713 21.943 3125
56.781     46.050 3238   375.6(1161) 1.2768 21.945 3060 0.586 1793 2.599 0.36222 34.199 0.3686   6254 10.095 182.9 1.03 0.40
COMBUSTOR         0   36   29   4
57.007     57.074 3500   436.9(1265) 1.2657 22.049 3161
57.007     45.705 3340   370.5(1199) 1.2715 22.051 3094 0.598 1851 2.606 0.36147 34.199 0.3694   6292 10.396 184.0 1.03 0.43
COMBUSTOR         0   37   30   4
57.731     56.069 3761   435.5(1366) 1.2512 22.3[illegible] 3239
57.731     44.600 3584   [illegible](1293) 1.2565 22.314 3170 0.6[illegible] 19[illegible] 2.623 0.35586 34.199 0.3753   6391 11.648 186.9 1.03 0.50
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READING = 0094 BLOCK = 59 TIME = 157.542 MACH 5.2 PT = 417.249 TT = 2228.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58.751	56.550	3982	430.9(1453)	1.2377	22.539	3297											
58.751	43.725	3790	342.8(1373)	1.2460	22.550	3227	0.651	2100	2.634	0.35393	34.199	0.3777	6462	11.537	188.9	1.03	0.57
COMBUSTOR	0	39	32 5														
60.761	56.253	4396	422.0(1616)	1.2078	22.988	3389											
60.761	38.962	4128	286.9(1503)	1.2208	23.030	3298	0.788	2601	2.651	0.36584	34.199	0.3650	6407	14.785	187.3	1.03	0.70
COMBUSTOR	0	40	33 4														
62.181	56.583	4491	415.9(1653)	1.1999	23.103	3405											
62.181	35.981	4165	247.7(1515)	1.2159	23.165	3297	0.880	2902	2.653	0.37575	34.199	0.3553	6359	16.944	185.9	1.03	0.74
SONIC THROAT		41	34 205														
62.181	62.896	5011	415.9(1862)	1.1563	23.651	3490											
62.181	35.981	4680	189.6(1717)	1.1643	23.857	3370	0.999	3366	2.651	0.37575	34.199	0.3553	6852	19.653	200.4	1.03	1.00
COMBUSTOR REGEN		42	35 4														
62.181	56.583	4503	423.0(1659)	1.1991	23.099	3409											
62.181	35.741	4173	251.6(1519)	1.2153	23.163	3299	0.887	2927	2.654	0.37575	34.199	0.3553	6364	17.093	186.1	1.03	0.74
NOZZLE AE		43	36 4														
87.257	56.593	4491	415.9(1651)	1.1999	23.103	3405											
87.257	1.343	2104	-614.8(695)	1.3009	23.235	2420	2.968	7182	2.653	0.06893	34.199	1.9372	8300	7.693	242.7	1.03	0.74
NOZZLE PO		44	37 4														
87.257	56.583	4491	415.9(1651)	1.1999	23.103	3405											
87.257	0.621	1753	-741.6(568)	1.3168	23.235	2223	3.424	7611	2.653	0.04051	34.199	3.2963	8614	4.791	251.9	1.03	0.74
NOZZLE AE REGEN		45	38 4														
87.257	56.583	4503	423.0(1659)	1.1991	23.099	3409											
87.257	1.347	2114	-610.8(699)	1.3005	23.235	2426	2.965	7192	2.654	0.06893	34.199	1.9372	8314	7.704	243.1	1.03	0.74
NOZZLE PO REGEN		46	39 4														
87.257	56.583	4503	423.0(1659)	1.1991	23.099	3409											
87.257	0.621	1761	-739.0(571)	1.3164	23.235	2227	3.424	7625	2.654	0.04040	34.199	3.3047	8631	4.788	252.4	1.03	0.74
FICTIVE COMBUSTR		68	61 0														
62.181	190.976	5127	415.9(1909)	1.1667	23.775	3537											
62.181	0.621	1707	-1133.1(538)	1.3087	24.226	2141	4.112	8804	2.558	0.05019	34.199	2.6605	9781	6.867	286.0	1.03	1.00
FICTIVE NOZZLE		69	62 0														
87.257	30.269	4393	374.7(1612)	1.1978	23.100	3365											
87.257	1.801	2530	-453.7(895)	1.2848	23.235	2637	2.441	6439	2.697	0.06893	34.199	1.9371	7738	6.897	226.3	1.03	0.74

XABS	P-IB	P-OB	DUA	GOX	G-IB	G-OB	CA-ALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-CB/PIO
6.981E-01	1.415E 00	0.000	-5.227E-01	0.000	0.000	0.000	2.070E-02	2.280E 00	3.391E-03	0.000	0.000
1.836E 01	1.415E 00	0.000	-4.704E 01	0.000	0.000	0.000	1.654E 02	2.280E 00	3.391E-03	0.000	0.000
3.070E 01	2.555E 00	0.000	-2.060E 02	0.000	0.000	0.000	5.053E 02	4.117E 00	6.123E-03	0.000	0.000
3.508E 01	4.244E 00	0.000	-4.283E 02	0.000	0.000	0.000	6.804E 02	6.836E 00	1.017E-02	0.000	0.000
3.516E 01	4.263E 00	6.050E 00	-4.941E 02	0.000	0.000	0.000	6.839E 02	6.869E 00	1.022E-02	9.748E 00	1.450E-02
3.516E 01	4.265E 00	6.029E 00	-4.942E 02	0.000	0.000	0.000	6.842E 02	6.872E 00	1.022E-02	9.715E 00	1.445E-02
3.555E 01	4.360E 00	4.712E 00	-5.024E 02	0.000	0.000	0.000	7.228E 02	7.025E 00	1.045E-02	7.592E 00	1.129E-02
3.583E 01	4.382E 00	3.750E 00	-5.137E 02	-2.757E 02	-2.757E 02	0.000	7.513E 02	7.061E 00	1.050E-02	6.042E 00	8.987E-03
3.606E 01	4.400E 00	5.186E 00	-5.230E 02	-2.793E 02	-2.793E 02	0.000	7.748E 02	7.090E 00	1.055E-02	8.356E 00	1.243E-02
3.648E 01	4.815E 00	7.818E 00	-5.357E 02	-2.862E 02	-2.862E 02	0.000	8.185E 02	7.758E 00	1.154E-02	1.260E 01	1.874E-02
3.701E 01	4.635E 00	1.114E 01	-5.496E 02	-3.318E 02	-2.953E 02	-3.656E 01	8.745E 02	7.468E 00	1.111E-02	1.795E 01	2.670E-02
3.729E 01	5.945E 00	1.290E 01	-5.573E 02	-3.476E 02	-3.003E 02	-4.732E 01	9.046E 02	9.579E 00	1.425E-02	2.079E 01	3.092E-02
3.803E 01	9.390E 00	1.544E 01	-6.129E 02	-3.643E 02	-3.142E 02	-7.510E 01	9.854E 02	1.513E 01	2.250E-02	2.487E 01	3.699E-02
3.831E 01	1.229E 01	1.640E 01	-6.394E 02	-4.056E 02	-3.200E 02	-8.560E 01	1.017E 03	1.981E 01	2.946E-02	2.643E 01	3.930E-02
3.875E 01	1.683E 01	1.663E 01	-6.906E 02	-4.322E 02	-3.303E 02	-1.019E 02	1.066E 03	2.711E 01	4.033E-02	2.680E 01	3.986E-02
3.878E 01	1.715E 01	1.665E 01	-6.941E 02	-4.341E 02	-3.310E 02	-1.031E 02	1.070E 03	2.763E 01	4.109E-02	2.683E 01	3.990E-02
3.901E 01	1.951E 01	1.737E 01	-7.180E 02	-4.466E 02	-3.371E 02	-1.116E 02	1.096E 03	3.144E 01	4.676E-02	2.800E 01	4.164E-02
3.929E 01	1.907E 01	1.826E 01	-7.428E 02	-4.670E 02	-3.451E 02	-1.219E 02	1.128E 03	3.072E 01	4.570E-02	2.943E 01	4.377E-02
3.950E 01	1.874E 01	1.274E 01	-7.571E 02	-4.811E 02	-3.515E 02	-1.296E 02	1.153E 03	3.019E 01	4.491E-02	2.053E 01	3.054E-02
3.978E 01	1.981E 01	5.325E 00	-7.826E 02	-5.066E 02	-3.609E 02	-1.397E 02	1.185E 03	3.191E 01	4.747E-02	8.580E 00	1.276E-02
4.000E 01	2.064E 01	5.269E 00	-8.073E 02	-5.165E 02	-3.688E 02	-1.475E 02	1.211E 03	3.325E 01	4.946E-02	8.490E 00	1.263E-02
4.040E 01	2.379E 01	5.166E 00	-8.534E 02	-5.456E 02	-3.842E 02	-1.616E 02	1.258E 03	3.834E 01	5.703E-02	8.324E 00	1.238E-02
4.041E 01	2.387E 01	5.164E 00	-8.545E 02	-5.466E 02	-3.846E 02	-1.620E 02	1.259E 03	3.847E 01	5.722E-02	8.320E 00	1.238E-02
4.128E 01	3.071E 01	4.942E 00	-9.667E 02	-6.206E 02	-4.222E 02	-1.984E 02	1.361E 03	4.948E 01	7.359E-02	7.963E 00	1.184E-02
4.134E 01	3.122E 01	4.925E 00	-9.757E 02	-6.268E 02	-4.252E 02	-2.016E 02	1.369E 03	5.030E 01	7.482E-02	7.936E 00	1.180E-02
4.150E 01	3.247E 01	5.718E 00	-9.976E 02	-6.424E 02	-4.329E 02	-2.094E 02	1.388E 03	5.233E 01	7.783E-02	9.213E 00	1.370E-02
4.246E 01	1.995E 01	1.050E 01	-1.076E 03	-7.417E 02	-4.824E 02	-2.593E 02	1.503E 03	3.215E 01	4.781E-02	1.692E 01	2.517E-02
4.406E 01	2.539E 01	1.848E 01	-1.112E 03	-9.163E 02	-5.660E 02	-3.503E 02	1.697E 03	4.091E 01	6.085E-02	2.977E 01	4.429E-02
4.431E 01	2.624E 01	1.874E 01	-1.118E 03	-9.427E 02	-5.785E 02	-3.642E 02	1.727E 03	4.227E 01	6.288E-02	3.019E 01	4.491E-02
4.478E 01	2.782E 01	1.922E 01	-1.131E 03	-9.873E 02	-6.016E 02	-3.857E 02	1.784E 03	4.482E 01	6.667E-02	3.098E 01	4.608E-02
4.480E 01	2.790E 01	1.925E 01	-1.131E 03	-9.894E 02	-6.027E 02	-3.866E 02	1.787E 03	4.496E 01	6.687E-02	3.102E 01	4.614E-02
4.626E 01	2.176E 01	2.078E 01	-1.118E 03	-1.104E 03	-6.792E 02	-4.292E 02	1.966E 03	3.506E 01	5.215E-02	3.348E 01	4.979E-02
4.730E 01	1.738E 01	2.186E 01	-1.062E 03	-1.177E 03	-7.280E 02	-4.494E 02	2.095E 03	2.801E 01	4.166E-02	3.523E 01	5.240E-02
4.731E 01	1.734E 01	2.186E 01	-1.062E 03	-1.178E 03	-7.285E 02	-4.496E 02	2.096E 03	2.795E 01	4.157E-02	3.522E 01	5.239E-02
4.811E 01	1.035E 01	2.168E 01	-9.951E 02	-1.235E 03	-7.698E 02	-4.649E 02	2.196E 03	1.668E 01	2.481E-02	3.494E 01	5.197E-02
4.875E 01	2.154E 01	2.154E 01	-9.268E 02	-1.280E 03	-8.034E 02	-4.769E 02	2.276E 03	3.471E 01	5.163E-02	3.471E 01	5.163E-02
4.928E 01	2.142E 01	2.142E 01	-8.675E 02	-1.318E 03	-8.315E 02	-4.867E 02	2.343E 03	3.452E 01	5.135E-02	3.452E 01	5.135E-02
5.069E 01	3.291E 01	3.291E 01	-6.666E 02	-1.432E 03	-9.076E 02	-5.240E 02	2.520E 03	5.302E 01	7.886E-02	5.302E 01	7.886E-02
5.279E 01	4.440E 01	4.440E 01	-2.410E 02	-1.616E 03	-1.025E 03	-5.912E 02	2.787E 03	7.154E 01	1.064E-01	7.154E 01	1.064E-01
5.329E 01	4.713E 01	4.713E 01	-1.221E 02	-1.660E 03	-1.053E 03	-6.067E 02	2.850E 03	7.595E 01	1.130E-01	7.595E 01	1.130E-01
5.403E 01	4.753E 01	4.753E 01	5.870E 01	-1.734E 03	-1.096E 03	-6.380E 02	2.945E 03	7.659E 01	1.139E-01	7.659E 01	1.139E-01
5.404E 01	4.754E 01	4.754E 01	6.111E 01	-1.735E 03	-1.097E 03	-6.385E 02	2.946E 03	7.660E 01	1.139E-01	7.660E 01	1.139E-01
5.480E 01	4.795E 01	4.795E 01	2.462E 02	-1.827E 03	-1.141E 03	-6.858E 02	3.044E 03	7.726E 01	1.149E-01	7.726E 01	1.149E-01
5.576E 01	4.703E 01	4.703E 01	4.745E 02	-1.966E 03	-1.198E 03	-7.676E 02	3.167E 03	7.576E 01	1.127E-01	7.578E 01	1.127E-01
5.622E 01	4.659E 01	4.659E 01	1.272E 03	-2.038E 03	-1.223E 03	-8.153E 02	3.208E 03	7.507E 01	1.117E-01	7.507E 01	1.117E-01
5.623E 01	4.658E 01	4.658E 01	1.275E 03	-2.039E 03	-1.223E 03	-8.164E 02	3.209E 03	7.506E 01	1.116E-01	7.506E 01	1.116E-01
5.628E 01	4.390E 01	4.653E 01	1.289E 03	-2.048E 03	-1.226E 03	-8.225E 02	3.217E 03	7.074E 01	1.052E-01	7.497E 01	1.115E-01
5.642E 01	4.390E 01	4.640E 01	1.319E 03	-2.070E 03	-1.232E 03	-8.383E 02	3.234E 03	7.074E 01	1.052E-01	7.476E 01	1.112E-01
5.650E 01	4.632E 01	4.632E 01	1.338E 03	-2.083E 03	-1.236E 03	-8.474E 02	3.245E 03	7.463E 01	1.110E-01	7.463E 01	1.110E-01
5.678E 01	4.605E 01	4.605E 01	1.398E 03	-2.128E 03	-1.249E 03	-8.791E 02	3.280E 03	7.420E 01	1.104E-01	7.420E 01	1.104E-01
5.701E 01	4.571E 01	4.571E 01	1.443E 03	-2.164E 03	-1.259E 03	-9.049E 02	3.309E 03	7.364E 01	1.095E-01	7.364E 01	1.095E-01
5.773E 01	4.460E 01	4.460E 01	1.565E 03	-2.261E 03	-1.293E 03	-9.878E 02	3.402E 03	7.186E 01	1.069E-01	7.186E 01	1.069E-01
5.875E 01	4.372E 01	4.372E 01	1.667E 03	-2.440E 03	-1.342E 03	-1.098E 03	3.532E 03	7.045E 01	1.048E-01	7.045E 01	1.048E-01
6.076E 01	3.896E 01	3.896E 01	1.677E 03	-2.743E 03	-1.441E 03	-1.302E 03	3.790E 03	6.276E 01	9.338E-02	6.276E 01	9.338E-02
6.218E 01	3.598E 01	3.598E 01	1.677E 03	-2.952E 03	-1.519E 03	-1.434E 03	3.972E 03	5.798E 01	8.623E-02	5.798E 01	8.623E-02
6.464E 01	2.715E 01	2.715E 01	1.677E 03	-3.322E 03	-1.679E 03	-1.643E 03	4.289E 03	4.374E 01	6.506E-02	4.374E 01	6.506E-02

XABS	P-IB	P-OB	POA	QOX	C-IB	C-OH	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.502E 01	2.470E 01	2.580E 01	1.677E 03	-3.360E 03	-1.706E 03	-1.674E 03	4.337E 03	3.480E 01	5.920E-02	4.157E 01	6.183E-02
6.506E 01	2.470E 01	2.565E 01	1.677E 03	-3.387E 03	-1.709E 03	-1.678E 03	4.342E 03	3.980E 01	5.920E-02	4.134E 01	6.149E-02
6.526E 01	2.332E 01	2.494E 01	1.677E 03	-3.416E 03	-1.723E 03	-1.693E 03	4.368E 03	3.757E 01	5.588E-02	4.018E 01	5.977E-02
6.692E 01	1.184E 01	1.019E 01	1.872E 03	-3.632E 03	-1.829E 03	-1.803E 03	4.584E 03	1.907E 01	2.837E-02	1.642E 01	2.442E-02
6.759E 01	9.047E 00	1.061E 01	2.063E 03	-3.706E 03	-1.864E 03	-1.842E 03	4.665E 03	1.458E 01	2.168E-02	1.710E 01	2.543E-02
6.836E 01	5.840E 00	8.539E 00	2.316E 03	-3.789E 03	-1.900E 03	-1.889E 03	4.760E 03	9.410E 00	1.400E-02	1.376E 01	2.046E-02
6.908E 01	4.817E 00	6.600E 00	2.481E 03	-3.864E 03	-1.929E 03	-1.934E 03	4.848E 03	7.761E 00	1.154E-02	1.063E 01	1.582E-02
6.969E 01	3.950E 00	4.504E 00	2.588E 03	-3.923E 03	-1.951E 03	-1.972E 03	4.922E 03	6.365E 00	9.467E-03	7.257E 00	1.079E-02
7.064E 01	3.031E 00	1.240E 00	2.692E 03	-4.000E 03	-1.980E 03	-2.020E 03	5.036E 03	4.884E 00	7.264E-03	1.998E 00	2.972E-03
7.107E 01	2.615E 00	1.564E 00	2.724E 03	-4.030E 03	-1.992E 03	-2.038E 03	5.088E 03	4.214E 00	6.267E-03	2.519E 00	3.747E-03
7.260E 01	1.795E 00	2.715E 00	2.828E 03	-4.118E 03	-2.028E 03	-2.090E 03	5.273E 03	2.893E 00	4.303E-03	4.375E 00	6.507E-03
7.275E 01	1.715E 00	2.375E 00	2.838E 03	-4.126E 03	-2.031E 03	-2.095E 03	5.290E 03	2.763E 00	4.110E-03	3.827E 00	5.692E-03
7.350E 01	2.027E 00	6.750E-01	2.890E 03	-4.166E 03	-2.045E 03	-2.121E 03	5.374E 03	3.266E 00	4.858E-03	1.088E 00	1.618E-03
7.350E 01	2.029E 00	6.659E-01	2.895E 03	-4.166E 03	-2.045E 03	-2.121E 03	5.375E 03	3.269E 00	4.862E-03	1.073E 00	1.596E-03
7.483E 01	2.580E 00	0.000	2.944E 03	-4.242E 03	-2.066E 03	-2.176E 03	5.427E 03	4.157E 00	6.183E-03	0.000	0.000
7.768E 01	2.325E 00	0.000	3.042E 03	-4.275E 03	-2.100E 03	-2.176E 03	5.525E 03	3.746E 00	5.572E-03	0.000	0.000
8.158E 01	1.600E 00	0.000	3.126E 03	-4.304E 03	-2.128E 03	-2.176E 03	5.630E 03	2.578E 00	3.835E-03	0.000	0.000
8.439E 01	1.735E 00	0.000	3.163E 03	-4.325E 03	-2.149E 03	-2.176E 03	5.684E 03	2.796E 00	4.158E-03	0.000	0.000
8.725E 01	2.330E 00	0.000	3.212E 03	-4.361E 03	-2.186E 03	-2.176E 03	5.707E 03	3.754E 00	5.584E-03	0.000	0.000
8.726E 01	2.331E 00	0.000	3.212E 03	-4.361E 03	-2.186E 03	-2.176E 03	5.707E 03	3.756E 00	5.587E-03	0.000	0.000

X	UDRAG	CDRAG	CF	HC
4.040E 01	1.175E 02	1.175E 02	2.223E-03	5.011E-02
4.041E 01	1.677E-01	1.177E 02	2.234E-03	5.251E-02
4.128E 01	1.441E 01	1.321E 02	2.346E-03	5.601E-02
4.134E 01	1.080E 00	1.332E 02	2.354E-03	5.651E-02
4.150E 01	2.640E 00	1.358E 02	2.375E-03	5.703E-02
4.246E 01	1.573E 01	1.515E 02	2.447E-03	5.867E-02
4.406E 01	2.537E 01	1.769E 02	2.464E-03	5.779E-02
4.431E 01	3.854E 00	1.806E 02	2.494E-03	5.795E-02
4.478E 01	7.194E 00	[illegible]	2.513E-03	5.824E-02
4.480E 01	3.707E-01	1.883E 02	2.514E-03	5.825E-02
4.626E 01	2.195E 01	2.103E 02	2.521E-03	5.469E-02
4.730E 01	1.491E 01	2.252E 02	2.478E-03	4.991E-02
4.731E 01	1.312E-01	2.253E 02	2.478E-03	4.990E-02
4.811E 01	1.090E 01	2.362E 02	2.421E-03	4.511E-02
4.875E 01	8.252E 00	2.445E 02	2.360E-03	4.033E-02
4.928E 01	6.418E 00	2.509E 02	2.365E-03	3.660E-02
5.069E 01	1.535E 01	2.662E 02	2.091E-03	2.707E-02
5.279E 01	1.710E 01	2.833E 02	2.625E-03	5.050E-02
5.329E 01	2.613E 00	2.860E 02	2.663E-03	4.616E-02
5.403E 01	3.805E 00	2.896E 02	3.209E-03	3.881E-02
5.404E 01	5.141E-02	2.898E 02	3.033E-03	4.219E-02
5.480E 01	3.649E 00	2.935E 02	3.006E-03	4.142E-02
5.576E 01	4.361E 00	2.978E 02	2.999E-03	4.063E-02
5.622E 01	1.364E 00	2.992E 02	3.299E-03	3.419E-02
5.623E 01	3.800E-02	2.992E 02	3.095E-03	3.751E-02
5.628E 01	2.092E-01	2.994E 02	3.063E-03	3.865E-02
5.642E 01	5.462E-01	3.000E 02	3.117E-03	3.783E-02
5.650E 01	3.308E-01	3.003E 02	3.444E-03	3.266E-02
5.678E 01	1.158E 00	3.015E 02	3.089E-03	3.877E-02
5.701E 01	9.155E-01	3.024E 02	3.108E-03	3.865E-02
5.773E 01	3.067E 00	3.054E 02	3.096E-03	3.956E-02
5.875E 01	4.561E 00	3.100E 02	3.138E-03	3.949E-02
6.076E 01	1.058E 01	3.206E 02	3.095E-03	4.203E-02
6.218E 01	9.050E 00	3.297E 02	3.167E-03	4.116E-02
6.464E 01	1.924E 01	3.696E 02	3.196E-03	4.038E-02
6.502E 01	3.323E 00	3.729E 02	3.178E-03	3.947E-02
6.506E 01	3.579E-01	3.732E 02	3.178E-03	3.943E-02
6.526E 01	1.799E 00	3.750E 02	3.169E-03	3.885E-02
6.692E 01	1.451E 01	3.895E 02	3.024E-03	2.579E-02
6.759E 01	5.132E 00	3.947E 02	3.003E-03	2.399E-02
6.836E 01	5.478E 00	4.001E 02	2.955E-03	1.951E-02
6.908E 01	4.508E 00	4.047E 02	2.919E-03	1.662E-02
6.969E 01	3.331E 00	4.080E 02	2.878E-03	1.343E-02
7.064E 01	3.969E 00	4.120E 02	2.785E-03	8.069E-03
7.107E 01	1.448E 00	4.134E 02	2.751E-03	7.952E-03
7.260E 01	5.213E 00	4.186E 02	2.790E-03	8.413E-03
7.275E 01	4.844E-01	4.191E 02	2.775E-03	7.809E-03
7.350E 01	2.035E 00	4.211E 02	2.713E-03	5.668E-03
7.350E 01	3.390E-03	4.211E 02	2.713E-03	5.656E-03
7.483E 01	1.350E 00	4.225E 02	2.799E-03	9.276E-03
7.768E 01	2.972E 00	4.255E 02	2.773E-03	6.536E-03
8.158E 01	2.742E 00	4.282E 02	2.704E-03	6.371E-03
8.439E 01	1.289E 00	4.295E 02	2.703E-03	6.751E-03
8.725E 01	6.014E-01	4.301E 02	2.734E-03	6.418E-03
8.726E 01	0.000	4.301E 02	2.734E-03	6.422E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2562.	(LBF)
MEASURED THRUST	2473.	(LBF)
CALCULATED SPECIFIC IMPULSE	2428.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2400.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.8587	
MEASURED THRUST COEFFICIENT	0.8489	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	7751.	(LBF)
NET THRUST	2515.	(LBF)
SPECIFIC IMPULSE	2440.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.8631	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.5	(LBF)
INLET MOMENTUM CHANGE	-971.0	(LBF)
COMBUSTOR FRICTION DRAG	212.1	(LBF)
COMBUSTOR STRUT DRAG	155.39	(LBF)
COMBUSTOR MOMENTUM CHANGE	2094.	(LBF)
NOZZLE FRICTION DRAG	79.78	(LBF)
NOZZLE STRUT DRAG	76.62	(LBF)
NOZZLE MOMENTUM CHANGE	1379.	(LBF)
NOZZLE PRESSURE INTEGRAL	1535.	(LBF)
EXTERNAL FRICTION DRAG	52.01	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1312.	(LBF)
TOTAL EXTERNAL DRAG	-1364.	(LBF)
TOTAL STRUT DRAG	232.01	(LBF)
CAVITY FORCE	-1318.	(LBF)
CALCULATED LOAD CELL FORCE	-180.	(LBF)
MEASURED LOAD CELL FORCE	-208.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -135.5,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2809	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.165	(IN)
NOZZLE SHROUD TRAILING EDGE	73.505	(IN)
NOZZLE PLUG TRAILING EDGE	87.257	(IN)
STRUT LEADING EDGE	56.421	(IN)
STRUT TRAILING EDGE	65.021	(IN)
COMBUSTOR EXIT	62.181	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8659	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2804	
DELTA PT2	0.1406	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4577	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2853	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9065	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9186	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9253	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8918	
ENTHALPY AT P0 - SUPERSONIC	-17.98	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-1.88	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0311
EQUIVALENCE RATIO	1.030
COMBUSTOR EFFICIENCY	0.736
TOTAL PRESSURE RATIO	0.2963
COMBUSTOR EFFECTIVENESS	0.7880
INJECTOR DISCHARGE COEFFICIENTS	0.8640, 0.7003,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - C6	0.9323
NOZZLE COEFFICIENT - CT	0.8625
PROCESS EFFICIENCY	0.8683
KINETIC ENERGY EFFICIENCY	0.8488

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.266	
1C	44.300	
2A	48.741	
2C	46.250	
3A	54.031	E
3B	56.216	E
4	44.766	

Reading 94

t = 163.84 sec.

READING = 0094 BLOCK = 66 TIME = 163.842 MACH 5.2 PT = 417.249 TT = 2231.0

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	417.249	2231	444.6(574)	1.3183	28.866	2251											
0.000	0.586	376	-38.8(90)	1.3983	28.866	951	5.170	4919	1.781	0.14318	31.755	0.8659	4985	10.945	157.0		
SPIKE TIP NS		2	0 6														
0.600	21.375	2231	444.6(574)	1.3184	28.866	2251											
0.600	19.385	2179	429.6(559)	1.3202	28.866	2226	0.387	862	1.986	0.14318	31.755	0.8659	5150	1.917	162.2		
WIND TUNNEL		3	0 0														
0.000	417.249	2231	444.6(574)	1.3183	28.866	2251											
0.000	0.621	382	-37.3(92)	1.3985	28.866	959	5.119	4911	1.781	0.14913	33.073	0.8659	5186	11.381	156.8		
SPIKE TIP NS		4	0 0														
0.600	21.375	2231	444.6(574)	1.3184	28.866	2251											
0.600	19.192	2174	428.3(557)	1.3204	28.866	2223	0.407	904	1.986	0.14913	33.073	0.8659	5186	2.096	156.8		
INLET THROAT		5	0 4														
40.400	191.465	2174	428.3(557)	1.3203	28.866	2223											
40.400	20.229	1226	171.0(300)	1.3691	28.866	1698	2.113	3588	1.827	1.10555	33.073	0.1121	4270	64.208	129.1		
INLET UPNRSK		6	0 3														
40.400	191.465	2174	428.3(557)	1.3203	28.866	2223											
40.400	18.389	1196	163.1(292)	1.3671	28.866	1678	2.171	3643	1.827	1.04676	33.073	0.1234	4326	59.265	130.8		
INLET DNNRSK		7	0 4														
40.400	119.177	2174	428.3(557)	1.3203	28.866	2223											
40.400	98.511	2075	400.5(530)	1.3238	28.866	2175	0.543	1181	1.860	1.04676	33.073	0.1234	4326	19.204	130.8		
COMBUSTOR	0	8	1 4														
40.410	191.367	2174	428.3(557)	1.3203	28.866	2223											
40.410	21.739	1250	177.2(306)	1.3636	28.866	1714	2.068	3545	1.827	1.15129	33.073	0.1122	4268	63.423	129.1		
COMBUSTOR	0	9	2 4														
41.276	160.476	2166	426.1(555)	1.3206	28.866	2220											
41.276	25.206	1357	204.9(334)	1.3571	28.866	1781	1.868	3327	1.838	1.15423	33.073	0.1119	4142	59.672	125.2		
COMBUSTOR	0	10	3 4														
41.341	158.478	2165	425.9(555)	1.3206	28.866	2219											
41.341	25.514	1365	207.1(336)	1.3566	28.866	1786											
							1.852	3309	1.839	1.15490	33.073	0.1118	4132	59.384	124.9		
COMBUSTOR	0	11	4 4														
41.500	153.843	2164	425.4(554)	1.3207	28.866	2219											
41.500	26.294	1386	212.5(342)	1.3553	28.866	1799	1.815	3264	1.841	1.15689	33.073	0.1116	4107	58.688	124.2		
COMBUSTOR	0	12	5 5														
42.460	136.629	2153	422.5(551)	1.3211	28.866	2214											
42.460	28.887	1458	231.4(361)	1.3511	28.866	1842	1.679	3092	1.848	1.14483	33.073	0.1128	4013	55.015	121.3		
COMBUSTOR	0	13	6 4														
44.061	124.946	2135	417.2(546)	1.3217	28.866	2204											
44.061	29.471	1466	236.8(368)	1.3495	28.866	1858	1.608	2987	1.852	1.10706	33.073	0.1166	3951	51.398	119.5		
COMBUSTOR	0	14	7 4														
44.310	123.692	2132	416.4(545)	1.3218	28.866	2203											
44.310	29.692	1490	240.1(369)	1.3493	28.866	1861	1.596	2970	1.852	1.10548	33.073	0.1168	3942	51.031	119.2		
COMBUSTOR	0	15	8 4														
44.776	121.042	2127	415.1(544)	1.3220	28.866	2201											
44.776	30.158	1501	243.0(372)	1.3487	28.866	1867	1.572	2934	1.853	1.10123	33.073	0.1173	3922	50.220	118.6		
COMBUSTOR	0	16	9 4														
44.800	120.884	2127	415.0(544)	1.3220	28.866	2201											
44.800	30.161	1502	243.1(372)	1.3486	28.866	1868	1.571	2933	1.853	1.10055	33.073	0.1173	3921	50.165	118.6		
COMBUSTOR	0	17	10 4														
46.260	113.986	2115	411.5(541)	1.3224	28.866	2195											
46.260	28.166	1489	239.6(369)	1.3494	28.866	1860	1.577	2933	1.855	1.03661	33.073	0.1246	3913	47.247	118.3		
COMBUSTOR	0	18	11 4														
47.301	112.019	2107	409.4(538)	1.3227	28.866	2191											
47.301	24.472	1436	225.7(355)	1.3524	28.866	1829	1.657	3031	1.855	0.96484	33.073	0.1338	3955	45.452	119.6		

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	M	A/AC	FORTH	Q	IVAL	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.310	112.035	2107	409.3(538)	1.3227	28.866	2191											
47.310	24.464	1436	225.7(355)	1.3524	28.866	1829	1.658	3032	1.655	0.96479	33.073	0.1338	3955	45.454	119.6		
COMBUSTOR	0	20	13 1														
48.110	114.204	2101	407.6(537)	1.3229	28.866	2188											
48.110	20.680	1363	206.5(336)	1.3567	28.866	1785	1.778	3173	1.853	0.89925	33.073	0.1436	4022	44.337	121.6		
COMBUSTOR	0	21	14 7														
48.751	119.303	2096	406.2(535)	1.3231	28.866	2185											
48.751	17.028	1277	184.0(313)	1.3620	28.866	1731	1.927	3335	1.850	0.83090	33.073	0.1554	4106	43.062	124.1		
COMBUSTOR	0	22	15 9														
49.281	127.799	2092	405.0(534)	1.3232	28.866	2183											
49.281	14.222	1192	162.1(291)	1.3673	28.866	1675	2.081	3486	1.844	0.77709	33.073	0.1662	4189	42.103	126.7		
COMBUSTOR	0	23	16 8														
50.691	185.359	2080	401.7(531)	1.3236	28.866	2178											
50.691	8.383	926	95.1(224)	1.3835	28.866	1486											
							2.637	3917	1.617	0.66230	33.073	0.1950	4445	40.315	134.4		
COMBUSTOR	0	24	17 202														
52.791	81.761	2139	395.0(550)	1.3207	28.787	2209											
52.791	48.100	1878	321.5(476)	1.3303	28.787	2077	0.923	1918	1.889	0.54469	33.186	0.2379	4909	16.235	147.9	0.02	1.00
COMBUSTOR	0	25	18 200														
53.291	78.707	2135	393.7(548)	1.3209	28.787	2207											
53.291	50.917	1919	332.8(488)	1.3268	28.787	2098	0.832	1746	1.891	0.52243	33.186	0.2480	5035	14.173	151.7	0.02	1.00
COMBUSTOR	0	26	19 6														
54.031	66.109	2535	428.2(798)	1.3087	23.892	2627											
54.031	53.824	2414	385.9(756)	1.3129	23.892	2568	0.566	1455	2.282	0.50156	33.774	0.2629	5152	11.341	152.5	0.60	0.23
COMBUSTOR	0	27	20 2														
54.041	66.115	2533	428.2(798)	1.3088	23.891	2627											
54.041	53.864	2413	386.0(756)	1.3129	23.891	2568	0.566	1452	2.282	0.50118	33.774	0.2631	5154	11.312	152.6	0.60	0.23
COMBUSTOR	0	28	21 4														
54.801	66.659	2402	425.5(754)	1.3148	23.776	2570											
54.801	56.050	2312	394.2(723)	1.3179	23.776	2524	0.496	1253	2.267	0.47394	33.774	0.2782	5366	9.225	158.9	0.60	0.19
COMBUSTOR	0	29	22 5														
55.760	64.622	2910	421.6(924)	1.2913	24.271	2775											
55.760	53.726	2791	378.5(882)	1.2953	24.271	2721	0.540	1469	2.317	0.44401	33.774	0.2970	5628	10.133	166.6	0.60	0.38
COMBUSTOR	0	30	23 5														
56.216	61.041	3103	454.4(1157)	1.2866	20.785	3090											
56.216	52.240	2990	406.3(1110)	1.2904	20.785	3038	0.511	1553	2.657	0.36494	34.362	0.3676	6577	8.607	191.4	1.19	0.29
COMBUSTOR	0	31	24 3														
56.226	61.627	3111	454.4(1161)	1.2862	20.792	3093											
56.226	52.208	2998	406.0(1113)	1.2900	20.793	3041	0.512	1557	2.658	0.36474	34.362	0.3678	6581	8.623	191.5	1.19	0.30
COMBUSTOR	0	32	25 3														
56.281	61.662	3099	454.1(1156)	1.2868	20.782	3089											
56.281	52.364	2968	406.6(1109)	1.2905	20.782	3037	0.508	1543	2.656	0.36365	34.362	0.3689	6595	8.718	191.9	1.19	0.29
COMBUSTOR	0	33	26 3														
56.421	61.474	3149	453.5(1176)	1.2844	20.827	3107											
56.421	52.136	3036	404.9(1128)	1.2882	20.827	3056	0.510	1560	2.661	0.36097	34.362	0.3717	6629	8.750	192.9	1.19	0.31
COMBUSTOR	0	34	27 10														
56.501	61.694	3386	453.2(1271)	1.2729	21.034	3192											
56.501	51.312	3254	395.4(1215)	1.2775	21.035	3135	0.542	1701	2.679	0.36501	34.362	0.3675	6647	9.647	193.4	1.19	0.36
COMBUSTOR	0	35	28 4														
56.781	61.562	3614	451.9(1363)	1.2611	21.242	3266											
56.781	50.400	3467	385.7(1300)	1.2666	21.245	3206	0.568	1621	2.695	0.36394	34.362	0.3686	6703	10.298	195.1	1.19	0.42
COMBUSTOR	0	36	29 4														
57.007	61.462	3783	450.9(1432)	1.2517	21.402	3317											
57.007	49.698	3624	377.9(1363)	1.2580	21.407	3254	0.587	1912	2.706	0.36319	34.362	0.3694	6744	10.792	196.3	1.19	0.46
COMBUSTOR	0	37	30 5														
57.731	60.634	4204	447.6(1604)	1.2247	21.814	3426											
57.731	47.450	4020	355.8(1523)	1.2332	21.032	3360	0.638	2143	2.729	0.35749	34.362	0.3753	6850	11.908	199.4	1.19	0.57

READING = 0094 BLOCK = 66 TIME = 163.842 MACH 5.2 PI = 417.249 TI = 2231.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	B	W/A	W	A/AC	PUMIM	Q	IVAC	PHI	ETAC
COMBUSTOR 0 38 31 4																	
58.751	60.549	4429	443.1(1697)	1.2072	22.049	3472											
58.751	40.612	4237	341.1(1612)	1.2165	22.081	3407	0.663	2260	2.738	0.35521	34.362	0.3777	6922	12.475	201.5	1.19	0.64
COMBUSTOR 0 39 32 6																	
60.761	60.211	4861	434.3(1877)	1.1661	22.503	3539											
60.761	41.100	4623	274.9(1769)	1.1735	22.619	3453	0.818	2825	2.752	0.36757	34.362	0.3650	6859	16.137	199.6	1.19	0.81
COMBUSTOR 0 40 33 5																	
62.181	60.664	4926	428.2(1904)	1.1617	22.578	3550											
62.181	37.931	4640	231.2(1774)	1.1699	22.732	3446	0.911	3139	2.751	0.37754	34.362	0.3553	6805	18.420	198.0	1.19	0.87
SONIC THROAT 41 34 202																	
62.181	65.426	5030	428.2(1947)	1.1639	22.671	3583											
62.181	37.931	4679	197.1(1788)	1.1802	22.839	3467	0.981	3400	2.740	0.37754	34.362	0.3553	7084	19.951	206.2	1.19	1.00
COMBUSTOR REGEN 42 35 5																	
62.181	60.664	4910	414.3(1896)	1.1625	22.593	3544											
62.181	38.417	4630	223.2(1769)	1.1706	22.740	3442	0.898	3092	2.748	0.37754	34.362	0.3553	6799	18.141	197.9	1.19	0.87
NOZZLE AE 43 36 4																	
87.257	60.664	4926	428.2(1910)	1.1617	22.578	3550											
87.257	1.564	2603	-766.4(906)	1.2763	23.033	2678	2.887	7731	2.751	0.06925	34.362	1.9372	9035	8.321	262.9	1.19	0.87
NOZZLE PO 44 37 4																	
87.257	60.664	4926	428.2(1910)	1.1617	22.578	3550											
87.257	0.621	2122	-994.1(718)	1.2928	23.033	2433	3.418	8317	2.751	0.03629	34.362	3.6964	9471	4.691	275.6	1.19	0.87
NOZZLE AE REGEN 45 38 4																	
87.257	60.664	4910	414.3(1896)	1.1625	22.593	3544											
87.257	1.559	2581	-775.2(897)	1.2769	23.033	2667	2.892	7715	2.748	0.06925	34.362	1.9372	9011	8.303	262.2	1.19	0.87
NOZZLE PO REGEN 46 39 4																	
87.257	60.664	4910	414.3(1896)	1.1625	22.593	3544											
87.257	0.621	2106	-960.1(712)	1.2934	23.033	2425	3.420	8293	2.748	0.03646	34.362	3.6796	9442	4.699	274.8	1.19	0.87
FICTIVE COMBUSTR 68 61 0																	
62.181	191.465	5130	428.2(1990)	1.1774	22.774	3631											
62.181	0.021	1608	-1144.3(528)	1.3173	23.033	2138	4.149	8870	2.646	0.05109	34.362	2.6259	9892	7.043	287.9	1.19	1.00
FICTIVE NOZZLE 69 62 0																	
87.257	27.925	4801	387.0(1849)	1.1565	22.544	3499											
87.257	2.278	3259	-496.7(1173)	1.2536	23.028	2970	2.239	6650	2.811	0.06926	34.362	1.9371	8832	7.157	239.6	1.19	0.87

XABS	P-IB	P-OB	PDA	QDA	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PIO
6.981E-01	1.410E 00	0.000	-5.230E-01	0.000	0.000	0.000	2.470E-02	2.270E 00	3.379E-03	0.000	0.000
1.836E 01	1.410E 00	0.000	-4.68[illegible]E 01	0.000	0.000	0.000	1.634E 02	2.270E 00	3.379E-03	0.000	0.000
3.070E 01	2.550E 00	0.000	-2.074E 02	0.000	0.000	0.000	5.053E 02	4.105E 00	6.111E-03	0.000	0.000
3.508E 01	4.251E 00	0.000	-4.278E 02	0.000	0.000	0.000	6.804E 02	6.643E 00	1.019E-02	0.000	0.000
3.516E 01	4.270E 00	6.050E 00	-4.936E 02	0.000	0.000	0.000	6.839E 02	6.673E 00	1.023E-02	9.739E 00	1.450E-02
3.516E 01	4.271E 00	6.029E 00	-4.937E 02	0.000	0.000	0.000	6.842E 02	6.676E 00	1.024E-02	9.700E 00	1.445E-02
3.555E 01	4.360E 00	4.697E 00	-5.020E 02	0.000	0.000	0.000	7.228E 02	7.016E 00	1.045E-02	7.561E 00	1.126E-02
3.583E 01	4.385E 00	3.725E 00	-5.133E 02	-2.713E 02	-2.713E 02	0.000	7.513E 02	7.058E 00	1.051E-02	5.996E 00	8.928E-03
3.606E 01	4.405E 00	5.163E 00	-5.227E 02	-2.749E 02	-2.749E 02	0.000	7.748E 02	7.091E 00	1.056E-02	8.310E 00	1.237E-02
3.648E 01	4.805E 00	7.798E 00	-5.355E 02	-2.817E 02	-2.817E 02	0.000	8.165E 02	7.735E 00	1.152E-02	1.255E 01	1.869E-02
3.701E 01	4.590E 00	1.112E 01	-5.492E 02	-3.272E 02	-2.906E 02	-3.660E 01	8.745E 02	7.388E 00	1.100E-02	1.791E 01	2.666E-02
3.729E 01	5.918E 00	1.289E 01	-5.566E 02	-3.429E 02	-2.955E 02	-4.737E 01	9.046E 02	9.527E 00	1.418E-02	2.074E 01	3.069E-02
3.803E 01	9.412E 00	1.541E 01	-6.123E 02	-3.845E 02	-3.093E 02	-7.519E 01	9.854E 02	1.515E 01	2.256E-02	2.481E 01	3.694E-02
3.831E 01	1.231E 01	1.637E 01	-6.389E 02	-4.007E 02	-3.150E 02	-8.570E 01	1.017E 03	1.981E 01	2.950E-02	2.636E 01	3.925E-02
3.875E 01	1.683E 01	1.661E 01	-6.903E 02	-4.271E 02	-3.251E 02	-1.021E 02	1.066E 03	2.710E 01	4.034E-02	2.673E 01	3.980E-02
3.878E 01	1.718E 01	1.662E 01	-6.938E 02	-4.290E 02	-3.258E 02	-1.032E 02	1.070E 03	2.761E 01	4.111E-02	2.676E 01	3.984E-02
3.901E 01	1.951E 01	1.736E 01	-7.177E 02	-4.435E 02	-3.318E 02	-1.117E 02	1.096E 03	3.141E 01	4.676E-02	2.795E 01	4.161E-02
3.929E 01	1.904E 01	1.826E 01	-7.425E 02	-4.617E 02	-3.396E 02	-1.221E 02	1.128E 03	3.065E 01	4.563E-02	2.940E 01	4.377E-02
3.950E 01	1.869E 01	1.283E 01	-7.567E 02	-4.757E 02	-3.460E 02	-1.297E 02	1.153E 03	3.008E 01	4.479E-02	2.065E 01	3.074E-02
3.978E 01	1.979E 01	5.525E 00	-7.818E 02	-4.951E 02	-3.552E 02	-1.399E 02	1.185E 03	3.186E 01	4.743E-02	8.894E 00	1.324E-02
4.000E 01	2.065E 01	5.442E 00	-8.063E 02	-5.106E 02	-3.629E 02	-1.477E 02	1.211E 03	3.325E 01	4.950E-02	8.760E 00	1.304E-02
4.040E 01	2.382E 01	5.291E 00	-8.521E 02	-5.399E 02	-3.781E 02	-1.618E 02	1.258E 03	3.834E 01	5.708E-02	8.517E 00	1.268E-02
4.041E 01	2.389E 01	5.287E 00	-8.532E 02	-5.407E 02	-3.785E 02	-1.622E 02	1.259E 03	3.846E 01	5.727E-02	8.511E 00	1.267E-02
4.128E 01	3.074E 01	4.960E 00	-9.652E 02	-6.141E 02	-4.155E 02	-1.986E 02	1.361E 03	4.948E 01	7.368E-02	7.985E 00	1.189E-02
4.134E 01	3.126E 01	4.936E 00	-9.742E 02	-6.203E 02	-4.185E 02	-2.018E 02	1.369E 03	5.031E 01	7.491E-02	7.948E 00	1.183E-02
4.150E 01	3.251E 01	5.728E 00	-9.962E 02	-6.357E 02	-4.261E 02	-2.096E 02	1.388E 03	5.234E 01	7.792E-02	9.221E 00	1.373E-02
4.246E 01	1.999E 01	1.051E 01	-1.074E 03	-7.344E 02	-4.748E 02	-2.596E 02	1.503E 03	3.217E 01	4.790E-02	1.692E 01	2.519E-02
4.406E 01	2.530E 01	1.849E 01	-1.111E 03	-9.003E 02	-5.570E 02	-3.513E 02	1.697E 03	4.072E 01	6.063E-02	2.976E 01	4.431E-02
4.431E 01	2.612E 01	1.875E 01	-1.117E 03	-9.347E 02	-5.693E 02	-3.654E 02	1.727E 03	4.205E 01	6.261E-02	3.019E 01	4.494E-02
4.478E 01	2.767E 01	1.925E 01	-1.129E 03	-9.791E 02	-5.920E 02	-3.871E 02	1.784E 03	4.454E 01	6.632E-02	3.098E 01	4.613E-02
4.480E 01	2.775E 01	1.927E 01	-1.129E 03	-9.813E 02	-5.932E 02	-3.881E 02	1.787E 03	4.467E 01	6.651E-02	3.103E 01	4.619E-02
4.626E 01	2.168E 01	2.083E 01	-1.115E 03	-1.096E 03	-6.644E 02	-4.311E 02	1.966E 03	3.489E 01	5.195E-02	3.353E 01	4.992E-02
4.730E 01	1.734E 01	2.194E 01	-1.059E 03	-1.166E 03	-7.164E 02	-4.519E 02	2.095E 03	2.792E 01	4.157E-02	3.531E 01	5.258E-02
4.731E 01	1.731E 01	2.199E 01	-1.059E 03	-1.166E 03	-7.168E 02	-4.516E 02	2.096E 03	2.786E 01	4.148E-02	3.540E 01	5.271E-02
4.811E 01	1.069E 01	2.691E 01	-9.810E 02	-1.225E 03	-7.575E 02	-4.675E 02	2.196E 03	1.720E 01	2.561E-02	4.332E 01	6.450E-02
4.875E 01	3.085E 01	3.085E 01	-8.887E 02	-1.271E 03	-7.906E 02	-4.806E 02	2.276E 03	4.966E 01	7.394E-02	4.966E 01	7.394E-02
4.928E 01	3.411E 01	3.411E 01	-7.990E 02	-1.310E 03	-8.182E 02	-4.917E 02	2.343E 03	5.491E 01	8.176E-02	5.491E 01	8.176E-02
5.069E 01	3.926E 01	3.926E 01	-5.277E 02	-1.419E 03	-8.931E 02	-5.261E 02	2.520E 03	6.320E 01	9.410E-02	6.320E 01	9.410E-02
5.279E 01	4.810E 01	4.810E 01	-4.678E 01	-1.597E 03	-1.008E 03	-5.884E 02	2.707E 03	7.743E 01	1.153E-01	7.743E 01	1.153E-01
5.329E 01	5.092E 01	5.092E 01	8.192E 01	-1.641E 03	-1.036E 03	-6.046E 02	2.850E 03	8.196E 01	1.220E-01	8.196E 01	1.220E-01
5.403E 01	5.382E 01	5.382E 01	2.819E 02	-1.714E 03	-1.079E 03	-6.353E 02	2.945E 03	8.664E 01	1.290E-01	8.664E 01	1.290E-01
5.404E 01	5.386E 01	5.386E 01	2.846E 02	-1.715E 03	-1.079E 03	-6.358E 02	2.946E 03	8.670E 01	1.291E-01	8.670E 01	1.291E-01
5.480E 01	5.685E 01	5.685E 01	4.992E 02	-1.804E 03	-1.123E 03	-6.812E 02	3.044E 03	9.151E 01	1.362E-01	9.151E 01	1.362E-01
5.576E 01	5.373E 01	5.373E 01	7.650E 02	-1.936E 03	-1.179E 03	-7.587E 02	3.167E 03	8.648E 01	1.288E-01	8.648E 01	1.288E-01
5.622E 01	5.224E 01	5.224E 01	1.715E 03	-2.007E 03	-1.203E 03	-8.036E 02	3.208E 03	8.409E 01	1.252E-01	8.409E 01	1.252E-01
5.623E 01	5.221E 01	5.221E 01	1.719E 03	-2.008E 03	-1.203E 03	-8.047E 02	3.209E 03	8.404E 01	1.251E-01	8.404E 01	1.251E-01
5.628E 01	5.270E 01	5.203E 01	1.734E 03	-2.016E 03	-1.206E 03	-8.105E 02	3.217E 03	8.483E 01	1.263E-01	8.375E 01	1.247E-01
5.642E 01	5.270E 01	5.157E 01	1.767E 03	-2.038E 03	-1.212E 03	-8.253E 02	3.234E 03	8.463E 01	1.263E-01	8.302E 01	1.236E-01
5.650E 01	5.131E 01	5.131E 01	1.788E 03	-2.050E 03	-1.216E 03	-8.339E 02	3.245E 03	8.260E 01	1.230E-01	8.260E 01	1.230E-01
5.678E 01	5.040E 01	5.040E 01	1.855E 03	-2.093E 03	-1.229E 03	-8.639E 02	3.280E 03	8.113E 01	1.208E-01	8.113E 01	1.208E-01
5.701E 01	4.970E 01	4.970E 01	1.903E 03	-2.128E 03	-1.239E 03	-8.884E 02	3.309E 03	8.000E 01	1.191E-01	8.000E 01	1.191E-01
5.773E 01	4.745E 01	4.745E 01	2.035E 03	-2.240E 03	-1.273E 03	-9.677E 02	3.402E 03	7.638E 01	1.137E-01	7.638E 01	1.137E-01
5.875E 01	4.661E 01	4.661E 01	2.144E 03	-2.395E 03	-1.320E 03	-1.075E 03	3.532E 03	7.503E 01	1.117E-01	7.503E 01	1.117E-01
6.076E 01	4.110E 01	4.110E 01	2.154E 03	-2.696E 03	-1.418E 03	-1.280E 03	3.740E 03	6.616E 01	9.850E-02	6.616E 01	9.850E-02
6.216E 01	3.793E 01	3.793E 01	2.154E 03	-2.910E 03	-1.495E 03	-1.416E 03	3.972E 03	6.106E 01	9.091E-02	6.106E 01	9.091E-02
6.464E 01	2.844E 01	2.844E 01	2.154E 03	-3.294E 03	-1.651E 03	-1.643E 03	4.289E 03	4.577E 01	6.815E-02	4.577E 01	6.815E-02

READING = 0094 BLOCK = 66 TIME = 165.842 MACH 5.2 PT = 417.249 TT = 2231.4

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAPALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.502E 01	2.605E 01	2.699E 01	2.154E 03	-3.355E 03	-1.678E 03	-1.677E 03	4.337E 03	4.193E 01	6.245E-02	4.344E 01	6.468E-02
6.506E 01	2.605E 01	2.683E 01	2.154E 03	-3.362E 03	-1.681E 03	-1.681E 03	4.342E 03	4.193E 01	6.243E-02	4.319E 01	6.431E-02
6.526E 01	2.458E 01	2.606E 01	2.154E 03	-3.393E 03	-1.695E 03	-1.698E 03	4.368E 03	3.957E 01	5.892E-02	4.195E 01	6.246E-02
6.692E 01	1.242E 01	1.071E 01	2.359E 03	-3.618E 03	-1.799E 03	-1.819E 03	4.584E 03	2.000E 01	2.978E-02	1.724E 01	2.567E-02
6.759E 01	9.505E 00	1.116E 01	2.581E 03	-3.696E 03	-1.835E 03	-1.861E 03	4.665E 03	1.530E 01	2.278E-02	1.796E 01	2.675E-02
6.836E 01	6.150E 00	8.940E 00	2.825E 03	-3.782E 03	-1.872E 03	-1.910E 03	4.760E 03	9.900E 00	1.474E-02	1.439E 01	2.143E-02
6.908E 01	5.046E 00	6.865E 00	2.998E 03	-3.860E 03	-1.902E 03	-1.958E 03	4.848E 03	8.122E 00	1.209E-02	1.105E 01	1.645E-02
6.969E 01	4.110E 00	4.671E 00	3.109E 03	-3.921E 03	-1.925E 03	-1.997E 03	4.922E 03	6.616E 00	9.850E-03	7.519E 00	1.120E-02
7.064E 01	3.112E 00	1.255E 00	3.217E 03	-4.002E 03	-1.955E 03	-2.047E 03	5.036E 03	5.009E 00	7.458E-03	2.020E 00	3.008E-03
7.107E 01	2.660E 00	1.597E 00	3.249E 03	-4.033E 03	-1.967E 03	-2.066E 03	5.088E 03	4.282E 00	6.375E-03	2.571E 00	3.828E-03
7.260E 01	1.840E 00	2.815E 00	3.357E 03	-4.126E 03	-2.004E 03	-2.123E 03	5.273E 03	2.962E 00	4.411E-03	4.531E 00	6.747E-03
7.275E 01	1.760E 00	2.459E 00	3.366E 03	-4.134E 03	-2.007E 03	-2.128E 03	5.290E 03	2.833E 00	4.218E-03	3.959E 00	5.894E-03
7.350E 01	2.106E 00	6.800E-01	3.424E 03	-4.177E 03	-2.021E 03	-2.156E 03	5.374E 03	3.390E 00	5.048E-03	1.095E 00	1.630E-03
7.350E 01	2.108E 00	6.705E-01	3.425E 03	-4.177E 03	-2.021E 03	-2.156E 03	5.375E 03	3.393E 00	5.052E-03	1.079E 00	1.607E-03
7.483E 01	2.720E 00	0.000	3.476E 03	-4.257E 03	-2.043E 03	-2.214E 03	5.427E 03	4.378E 00	6.519E-03	0.000	0.000
7.768E 01	2.400E 00	0.000	3.579E 03	-4.236E 03	-2.078E 03	-2.158E 03	5.525E 03	3.863E 00	5.752E-03	0.000	0.000
8.158E 01	1.660E 00	0.000	3.666E 03	-4.265E 03	-2.107E 03	-2.158E 03	5.630E 03	2.672E 00	3.978E-03	0.000	0.000
8.439E 01	1.805E 00	0.000	3.704E 03	-4.287E 03	-2.129E 03	-2.158E 03	5.684E 03	2.905E 00	4.326E-03	0.000	0.000
8.725E 01	2.415E 00	0.000	3.755E 03	-4.326E 03	-2.168E 03	-2.158E 03	5.707E 03	3.887E 00	5.788E-03	0.000	0.000
8.726E 01	2.416E 00	0.000	3.755E 03	-4.326E 03	-2.168E 03	-2.158E 03	5.707E 03	3.889E 00	5.791E-03	0.000	0.000

READING = 0094 BLOCK = 66 TIME = 163.842 MACH 5.2 PI = 417.249 TT = 2231.4

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.175E 02	1.175E 02	2.223E-03	5.005E-02
4.041E 01	1.679E-01	1.177E 02	2.233E-03	5.251E-02
4.128E 01	1.443E 01	1.321E 02	2.345E-03	5.601E-02
4.134E 01	1.082E 00	1.332E 02	2.354E-03	5.650E-02
4.150E 01	2.643E 00	1.359E 02	2.374E-03	5.702E-02
4.246E 01	1.575E 01	1.516E 02	2.447E-03	5.606E-02
4.406E 01	2.541E 01	1.770E 02	2.483E-03	5.770E-02
4.431E 01	3.859E 00	1.809E 02	2.493E-03	5.794E-02
4.478E 01	7.205E 00	1.881E 02	2.512E-03	5.822E-02
4.480E 01	3.714E-01	1.885E 02	2.513E-03	5.821E-02
4.626E 01	2.199E 01	2.104E 02	2.520E-03	5.406E-02
4.730E 01	1.494E 01	2.254E 02	2.476E-03	4.907E-02
4.731E 01	1.314E-01	2.255E 02	2.476E-03	4.906E-02
4.811E 01	1.093E 01	2.364E 02	2.409E-03	4.403E-02
4.875E 01	8.295E 00	2.447E 02	2.325E-03	3.957E-02
4.928E 01	6.458E 00	2.512E 02	2.238E-03	3.527E-02
5.069E 01	1.526E 01	2.665E 02	1.935E-03	2.523E-02
5.279E 01	1.710E 01	2.836E 02	2.608E-03	5.328E-02
5.329E 01	2.557E 00	2.861E 02	2.670E-03	5.053E-02
5.403E 01	3.595E 00	2.897E 02	3.291E-03	3.801E-02
5.404E 01	4.572E-02	2.898E 02	3.021E-03	4.322E-02
5.480E 01	3.036E 00	2.928E 02	3.051E-03	3.947E-02
5.576E 01	3.541E 00	2.963E 02	2.883E-03	4.300E-02
5.622E 01	1.210E 00	2.975E 02	3.290E-03	3.653E-02
5.623E 01	3.594E-02	2.976E 02	3.101E-03	3.902E-02
5.628E 01	1.918E-01	2.978E 02	3.106E-03	3.934E-02
5.642E 01	4.811E-01	2.983E 02	3.094E-03	3.961E-02
5.650E 01	3.111E-01	2.986E 02	3.514E-03	3.408E-02
5.678E 01	1.176E 00	2.997E 02	3.099E-03	4.207E-02
5.701E 01	9.464E-01	3.007E 02	3.139E-03	4.197E-02
5.773E 01	3.291E 00	3.040E 02	3.121E-03	4.346E-02
5.875E 01	5.039E 00	3.090E 02	3.203E-03	4.250E-02
6.076E 01	1.173E 01	3.206E 02	3.157E-03	4.527E-02
6.218E 01	1.008E 01	3.308E 02	3.245E-03	4.421E-02
6.464E 01	2.128E 01	3.751E 02	3.289E-03	4.332E-02
6.502E 01	3.652E 00	3.788E 02	3.278E-03	4.234E-02
6.506E 01	3.928E-01	3.792E 02	3.277E-03	4.229E-02
6.526E 01	1.973E 00	3.811E 02	3.272E-03	4.104E-02
6.692E 01	1.583E 01	3.970E 02	3.166E-03	2.747E-02
6.759E 01	5.561E 00	4.025E 02	3.147E-03	2.553E-02
6.836E 01	5.919E 00	4.085E 02	3.097E-03	2.006E-02
6.908E 01	4.847E 00	4.133E 02	3.059E-03	1.750E-02
6.969E 01	3.565E 00	4.169E 02	3.017E-03	1.406E-02
7.064E 01	4.222E 00	4.211E 02	2.930E-03	8.366E-03
7.107E 01	1.529E 00	4.226E 02	2.926E-03	8.202E-03
7.260E 01	5.519E 00	4.281E 02	2.934E-03	8.761E-03
7.275E 01	5.146E-01	4.287E 02	2.921E-03	8.128E-03
7.350E 01	2.161E 00	4.308E 02	2.866E-03	5.897E-03
7.350E 01	3.601E-03	4.308E 02	2.866E-03	5.804E-03
7.463E 01	1.445E 00	4.323E 02	2.942E-03	9.814E-03
7.768E 01	3.178E 00	4.354E 02	2.914E-03	6.888E-03
8.158E 01	2.918E 00	4.384E 02	2.852E-03	6.660E-03
8.439E 01	1.375E 00	4.397E 02	2.850E-03	7.071E-03
8.725E 01	6.412E-01	4.404E 02	2.873E-03	6.792E-03
8.726E 01	0.000	4.404E 02	2.873E-03	6.795E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2993.	(LBF)
MEASURED THRUST	2883.	(LBF)
CALCULATED SPECIFIC IMPULSE	2511.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2419.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	1.0267	
MEASURED THRUST COEFFICIENT	0.9892	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	8211.	(LBF)
NET THRUST	2972.	(LBF)
SPECIFIC IMPULSE	2494.	(LBF-SEC/LBM)
THRUST COEFFICIENT	1.0196	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.5	(LBF)
INLET MOMENTUM CHANGE	-969.7	(LBF)
COMBUSTOR FRICTION DRAG	215.3	(LBF)
COMBUSTOR STRUT DRAG	177.54	(LBF)
COMBUSTOR MOMENTUM CHANGE	2536.	(LBF)
NOZZLE FRICTION DRAG	86.52	(LBF)
NOZZLE STRUT DRAG	87.54	(LBF)
NOZZLE MOMENTUM CHANGE	1427.	(LBF)
NOZZLE PRESSURE INTEGRAL	1601.	(LBF)
EXTERNAL FRICTION DRAG	52.05	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1317.	(LBF)
TOTAL EXTERNAL DRAG	-1369.	(LBF)
TOTAL STRUT DRAG	265.08	(LBF)
CAVITY FORCE	-1326.	(LBF)
CALCULATED LOAD CELL FORCE	298.	(LBF)
MEASURED LOAD CELL FORCE	168.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -135.5,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2809	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.165	(IN)
NOZZLE SHROUD TRAILING EDGE	73.505	(IN)
NOZZLE PLUG TRAILING EDGE	67.257	(IN)
STRUT LEADING EDGE	56.421	(IN)
STRUT TRAILING EDGE	65.021	(IN)
COMBUSTOR EXIT	62.161	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8659	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2807	
DELTA PT2	0.1406	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4589	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2856	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9066	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9166	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9257	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8922	
ENTHALPY AT PO - SUPERSONIC	-17.64	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-1.67	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0359
EQUIVALENCE RATIO	1.191
COMBUSTOR EFFICIENCY	0.865
TOTAL PRESSURE RATIO	0.3168
COMBUSTOR EFFECTIVENESS	0.9250
INJECTOR DISCHARGE COEFFICIENTS	0.8612, 0.7020,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9113
NOZZLE COEFFICIENT - CT	0.8367
PROCESS EFFICIENCY	0.8001
KINETIC ENERGY EFFICIENCY	0.7985

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.266	
1C	44.300	
2A	46.741	
2C	46.250	
3A	54.031	E
3B	56.216	E
4	44.766	

Reading 94

t = 180.04 sec.

READING = 0094 BLOCK = 84 TIME = 180.042 MACH 5.2 PT = 417.499 TT = 2246.1

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	HOPTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	417.499	2246	448.8(578)	1.3178	28.866	2258											
0.000	0.585	379	-38.2(91)	1.3984	28.866	955	5.170	4937	1.783	0.14250	31.603	0.8659	4979	10.932	157.5		
SPIKE TIP NS		2	0 6														
0.600	21.362	2246	448.8(578)	1.3179	28.866	2258											
0.600	19.378	2194	433.9(563)	1.3197	28.866	2233	0.387	864	1.986	0.14250	31.603	0.8659	5146	1.912	162.8		
WIND TUNNEL		3	0 0														
0.000	417.499	2246	448.8(578)	1.3178	28.866	2258											
0.000	0.621	385	-36.6(93)	1.3985	28.866	963	5.118	4929	1.783	0.14849	32.932	0.8659	5183	11.374	157.4		
SPIKE TIP NS		4	0 0														
0.600	21.362	2246	448.8(578)	1.3179	28.866	2258											
0.600	19.183	2188	432.4(561)	1.3199	28.866	2230	0.407	907	1.988	0.14849	32.932	0.8659	5183	2.093	157.4		
INLET THROAT		5	0 4														
40.400	191.541	2187	432.2(561)	1.3199	28.866	2230											
40.400	20.180	1234	174.9(302)	1.3647	28.866	1703	2.115	3602	1.829	1.10028	32.932	0.1121	4266	64.172	129.5		
INLET UPNRBK		6	0 3														
40.400	191.541	2187	432.2(561)	1.3199	28.866	2230											
40.400	18.364	1203	165.0(294)	1.3666	28.866	1683	2.173	3656	1.829	1.04231	32.932	0.1234	4322	59.222	131.3		
INLET DNNRBK		7	0 4														
40.400	119.094	2187	432.2(561)	1.3199	28.866	2230											
40.400	98.465	2089	404.2(533)	1.3233	28.866	2182	0.542	1184	1.862	1.04231	32.932	0.1234	4322	19.171	131.3		
COMBUSTOR	0	8	1 4														
40.410	191.443	2187	432.1(561)	1.3199	28.866	2230											
40.410	21.706	1258	179.2(308)	1.3632	28.866	1719											
							2.070	3557	1.829	1.14640	32.932	0.1122	4265	63.379	129.5		
COMBUSTOR	0	9	2 4														
41.276	160.403	2179	429.8(559)	1.3202	28.866	2226											
41.276	25.176	1366	207.2(336)	1.3565	28.866	1786	1.868	3338	1.840	1.14933	32.932	0.1119	4138	59.614	125.6		
COMBUSTOR	0	10	3 4														
41.341	158.404	2179	429.6(559)	1.3202	28.866	2226											
41.341	25.484	1374	209.4(339)	1.3560	28.866	1792	1.853	3320	1.841	1.14999	32.932	0.1116	4126	59.326	125.3		
COMBUSTOR	0	11	4 4														
41.500	153.772	2177	429.1(558)	1.3202	28.866	2225											
41.500	26.261	1395	214.8(344)	1.3548	28.866	1804	1.815	3275	1.843	1.15198	32.932	0.1116	4103	58.631	124.6		
COMBUSTOR	0	12	5 5														
42.460	136.599	2166	426.0(555)	1.3206	28.866	2220											
42.460	28.831	1466	233.6(363)	1.3507	28.866	1847	1.680	3103	1.850	1.13997	32.932	0.1128	4009	54.971	121.7		
COMBUSTOR	0	13	6 4														
44.061	125.082	2146	420.5(549)	1.3213	28.866	2210											
44.061	29.350	1492	240.6(370)	1.3492	28.866	1862	1.611	3000	1.853	1.10236	32.932	0.1166	3948	51.399	119.9		
COMBUSTOR	0	14	7 4														
44.310	123.862	2143	419.7(549)	1.3214	28.866	2209											
44.310	29.557	1497	241.7(371)	1.3489	28.866	1865	1.600	2984	1.853	1.10079	32.932	0.1168	3938	51.042	119.6		
COMBUSTOR	0	15	8 4														
44.776	121.269	2138	418.2(547)	1.3216	28.866	2206											
44.776	29.994	1507	244.4(374)	1.3484	28.866	1871	1.577	2949	1.854	1.09656	32.932	0.1173	3919	50.253	119.0		
COMBUSTOR	0	16	9 4														
44.800	121.114	2138	418.2(547)	1.3216	28.866	2206											
44.800	29.996	1507	244.5(374)	1.3483	28.866	1871	1.576	2948	1.854	1.09588	32.932	0.1173	3918	50.199	119.0		
COMBUSTOR	0	17	10 4														
46.260	114.315	2126	414.6(544)	1.3220	28.866	2200											
46.260	27.975	1493	240.8(370)	1.3491	28.866	1863	1.583	2949	1.856	1.03221	32.932	0.1246	3911	47.307	118.8		
COMBUSTOR	0	18	11 4														
47.301	112.364	2118	412.4(541)	1.3223	28.866	2196											
47.301	24.314	1440	226.8(356)	1.3521	28.866	1832	1.664	3047	1.857	0.96075	32.932	0.1338	3952	45.494	120.0		

READING = 0094 BLOCK = 84 TIME = 100.042 MACH 5.2 PT = 417.499 TT = 2240.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOPTF	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.310	112.378	2118	412.4(541)	1.3223	26.866	2196											
47.310	24.306	1440	226.6(356)	1.3521	26.866	1831	1.664	3047	1.857	0.96069	32.932	0.1336	3952	45.496	120.0		
COMBUSTOR	0	20	13 5														
48.110	111.778	2112	410.7(540)	1.3225	26.866	2193											
48.110	21.080	1385	212.3(342)	1.3554	26.866	1798	1.752	3150	1.856	0.89543	32.932	0.1436	4000	43.839	121.5		
COMBUSTOR	0	21	14 4														
48.751	109.567	2107	409.3(538)	1.3227	26.866	2191											
48.751	18.338	1339	200.2(330)	1.3582	26.866	1770	1.827	3235	1.857	0.82738	32.932	0.1554	4041	41.590	122.7		
COMBUSTOR	0	22	15 4														
49.281	107.123	2103	408.2(537)	1.3228	26.866	2189											
49.281	16.432	1306	191.6(321)	1.3602	26.866	1749	1.882	3292	1.858	0.77380	32.932	0.1662	4069	39.591	123.6		
COMBUSTOR	0	23	16 6														
50.691	109.110	2092	405.1(534)	1.3232	26.866	2183											
50.691	12.015	1189	161.3(291)	1.3675	26.866	1673	2.087	3493	1.855	0.65949	32.932	0.1950	4175	35.796	126.6		
COMBUSTOR	0	24	17 202														
52.791	81.940	2150	398.1(553)	1.3204	26.788	2214											
52.791	28.300	1652	259.2(414)	1.3401	26.787	1955	1.348	2636	1.890	0.54236	33.044	0.2379	4431	22.215	134.1	0.02	1.00
COMBUSTOR	0	25	18 200														
53.291	78.528	2145	396.7(551)	1.3205	26.786	2212											
53.291	30.450	1697	271.5(426)	1.3379	26.767	1980	1.264	2502	1.893	0.52019	33.044	0.2480	4504	20.229	136.3	0.02	1.00
COMBUSTOR	0	26	19 4														
54.031	54.349	2954	412.1(856)	1.2867	26.762	2657											
54.031	32.043	2621	302.9(749)	1.2979	26.763	2514	0.930	2338	2.162	0.49499	33.332	0.2629	4580	17.986	137.4	0.31	0.65
COMBUSTOR	0	27	20 2														
54.041	54.331	2956	412.1(857)	1.2866	26.764	2658											
54.041	32.064	2623	303.0(750)	1.2978	26.765	2515	0.929	2337	2.162	0.49462	33.332	0.2631	4581	17.961	137.4	0.31	0.65
COMBUSTOR	0	28	21 4														
54.801	53.144	3066	409.6(897)	1.2803	26.918	2702											
54.801	33.700	2769	310.9(801)	1.2905	26.919	2578	0.862	2222	2.171	0.46774	33.332	0.2782	4704	16.155	141.1	0.31	0.75
COMBUSTOR	0	29	22 4														
55.760	51.830	3267	406.6(954)	1.2713	27.136	2759											
55.760	34.330	2989	311.7(862)	1.2811	27.139	2648	0.820	2172	2.182	0.43620	33.332	0.2970	4862	14.792	145.9	0.31	0.86
COMBUSTOR	0	30	23 4														
56.216	47.926	3524	420.3(1131)	1.2606	24.984	2973											
56.216	34.629	3291	332.2(1047)	1.2693	24.969	2884	0.728	2100	2.376	0.35705	33.619	0.3676	5454	11.650	162.2	0.59	0.63
COMBUSTOR	0	31	24 2														
56.226	47.932	3527	420.3(1132)	1.2605	24.987	2974											
56.226	34.636	3295	332.2(1048)	1.2692	24.991	2885	0.728	2100	2.376	0.35686	33.619	0.3678	5457	11.644	162.3	0.59	0.63
COMBUSTOR	0	32	25 4														
56.281	47.618	3604	420.1(1159)	1.2561	25.072	2996											
56.281	33.711	3357	324.9(1069)	1.2657	25.078	2902	0.752	2183	2.381	0.35579	33.619	0.3689	5466	12.070	162.8	0.59	0.66
COMBUSTOR	0	33	26 3														
56.421	47.505	3626	419.6(1166)	1.2549	25.098	3002											
56.421	33.757	3381	324.8(1077)	1.2644	25.104	2910	0.748	2177	2.382	0.35317	33.619	0.3717	5488	11.949	163.2	0.59	0.67
COMBUSTOR	0	34	27 5														
56.501	48.320	3601	419.2(1157)	1.2564	25.071	2995											
56.501	34.816	3365	328.8(1072)	1.2654	25.076	2906	0.732	2127	2.379	0.35713	33.619	0.3675	5500	11.807	163.6	0.59	0.66
COMBUSTOR	0	35	28 3														
56.781	48.537	3656	416.2(1176)	1.2532	25.135	3011											
56.781	35.000	3420	326.8(1091)	1.2625	25.142	2922	0.732	2139	2.381	0.35607	33.619	0.3686	5539	11.635	164.8	0.59	0.68
COMBUSTOR	0	36	29 3														
57.007	48.675	3705	417.3(1193)	1.2504	25.191	3024											
57.007	35.048	3466	324.5(1106)	1.2599	25.199	2935	0.734	2155	2.383	0.35534	33.619	0.3694	5568	11.905	165.6	0.59	0.71
COMBUSTOR	0	37	30 4														
57.731	48.658	3809	414.6(1229)	1.2441	25.316	3051											
57.731	35.260	3572	320.8(1143)	1.2539	25.327	2965	0.730	2166	2.387	0.34976	33.619	0.3753	5646	11.772	167.9	0.59	0.75

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOPTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58.751	46.636	3904	410.9(1262)	1.2381	25.436	3074											
58.751	35.287	3665	314.8(1174)	1.2483	25.449	2990	0.733	2192	2.390	0.34754	33.619	0.3777	5704	11.839	169.7	0.59	0.80
COMBUSTOR	0	39	32 4														
60.761	49.273	4069	403.8(1319)	1.2271	25.649	3111											
60.761	32.700	3769	279.4(1208)	1.2405	25.674	3009	0.829	2495	2.394	0.35963	33.619	0.3650	5664	13.944	168.5	0.59	0.88
COMBUSTOR	0	40	33 4														
62.181	49.826	4110	398.9(1333)	1.2243	25.712	3119											
62.181	30.694	3756	251.8(1202)	1.2402	25.743	2999	0.905	2713	2.394	0.36938	33.619	0.3553	5629	15.575	167.4	0.59	0.90
SONIC THROAT		41	34 202														
62.181	52.610	4312	398.9(1404)	1.2104	25.954	3162											
62.181	30.694	3922	229.3(1259)	1.2286	26.007	3035	0.960	2913	2.393	0.36938	33.619	0.3553	5838	16.724	173.6	0.59	1.00
COMBUSTOR REGEN		42	35 21														
62.181	49.826	4223	449.2(1375)	1.2179	25.694	3155											
62.181	21.964	3627	201.0(1155)	1.2452	25.749	2953	1.193	3524	2.406	0.36938	33.619	0.3553	5682	20.232	169.0	0.59	0.90
NOZZLE AE		43	36 4														
87.257	49.826	4110	398.9(1325)	1.2243	25.712	3119											
87.257	1.152	1832	-435.2(534)	1.3150	25.768	2156	2.997	6460	2.394	0.06776	33.619	1.9371	7322	6.803	217.8	0.59	0.90
NOZZLE PO		44	37 4														
87.257	49.826	4110	398.9(1325)	1.2243	25.712	3119											
87.257	0.621	1576	-516.3(453)	1.3279	25.768	2010	3.367	6767	2.394	0.04446	33.619	2.9523	7541	4.676	224.3	0.59	0.90
NOZZLE AE REGEN		45	38 4														
87.257	49.826	4223	449.2(1375)	1.2179	25.694	3155											
87.257	1.188	1916	-408.1(561)	1.3112	25.768	2201	2.975	6550	2.406	0.06776	33.619	1.9371	7434	6.897	221.1	0.59	0.90
NOZZLE PO REGEN		46	39 4														
87.257	49.826	4223	449.2(1375)	1.2179	25.694	3155											
87.257	0.621	1638	-496.9(473)	1.3246	25.768	2046	3.363	6881	2.406	0.04350	33.619	3.0176	7670	4.051	228.1	0.59	0.90
FICTIVE COMBUSTR		68	61 0														
62.181	191.541	4541	398.9(1414)	1.2202	25.985	3183											
62.181	0.621	1216	-714.7(341)	1.3474	26.050	1768	4.221	7465	2.294	0.06426	33.619	2.0426	8135	7.455	241.7	0.59	1.00
FICTIVE NOZZLE		69	62 0														
87.257	26.920	4016	362.1(1299)	1.2248	25.713	3084											
87.257	1.544	2206	-312.1(657)	1.2993	25.768	2352	2.470	5808	2.432	0.06776	33.619	1.9371	6835	6.117	203.3	0.59	0.90

XABS	P-IB	P-OB	PDA	QOA	W-IB	W-OB	CAXALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PIO
6.981E-01	1.415E 00	0.000	-5.227E-01	0.000	0.000	0.000	2.470E-02	2.274E 00	3.389E-03	0.000	0.000
1.836E 01	1.415E 00	0.000	-4.704E 01	0.000	0.000	0.000	1.634E 02	2.279E 00	3.389E-03	0.000	0.000
3.070E 01	2.540E 00	0.000	-2.074E 02	0.000	0.000	0.000	5.055E 02	4.090E 00	6.084E-03	0.000	0.000
3.508E 01	4.239E 00	0.000	-4.270E 02	0.000	0.000	0.000	6.804E 02	6.027E 00	1.015E-02	0.000	0.000
3.516E 01	4.257E 00	6.054E 00	-4.929E 02	0.000	0.000	0.000	6.839E 02	6.855E 00	1.020E-02	9.749E 00	1.450E-02
3.516E 01	4.258E 00	6.033E 00	-4.930E 02	0.000	0.000	0.000	6.842E 02	6.858E 00	1.020E-02	9.715E 00	1.445E-02
3.555E 01	4.345E 00	4.684E 00	-5.012E 02	0.000	0.000	0.000	7.228E 02	6.997E 00	1.041E-02	7.543E 00	1.122E-02
3.583E 01	4.375E 00	3.700E 00	-5.125E 02	-2.659E 02	-2.659E 02	0.000	7.513E 02	7.046E 00	1.048E-02	5.958E 00	8.862E-03
3.606E 01	4.400E 00	5.142E 00	-5.219E 02	-2.694E 02	-2.694E 02	0.000	7.748E 02	7.086E 00	1.054E-02	8.280E 00	1.232E-02
3.648E 01	4.803E 00	7.785E 00	-5.347E 02	-2.760E 02	-2.760E 02	0.000	8.165E 02	7.735E 00	1.150E-02	1.254E 01	1.865E-02
3.701E 01	4.567E 00	1.112E 01	-5.483E 02	-3.252E 02	-2.848E 02	-4.043E 01	8.745E 02	7.355E 00	1.094E-02	1.791E 01	2.663E-02
3.729E 01	5.908E 00	1.289E 01	-5.557E 02	-3.419E 02	-2.896E 02	-5.233E 01	9.046E 02	9.514E 00	1.415E-02	2.075E 01	3.087E-02
3.803E 01	9.435E 00	1.540E 01	-6.115E 02	-3.801E 02	-3.031E 02	-6.308E 01	9.854E 02	1.519E 01	2.260E-02	2.479E 01	3.688E-02
3.831E 01	1.230E 01	1.635E 01	-6.382E 02	-4.033E 02	-3.066E 02	-9.470E 01	1.017E 03	1.981E 01	2.947E-02	2.633E 01	3.916E-02
3.875E 01	1.678E 01	1.658E 01	-6.894E 02	-4.313E 02	-3.185E 02	-1.128E 02	1.066E 03	2.703E 01	4.020E-02	2.671E 01	3.972E-02
3.878E 01	1.710E 01	1.660E 01	-6.930E 02	-4.333E 02	-3.193E 02	-1.141E 02	1.070E 03	2.754E 01	4.096E-02	2.673E 01	3.976E-02
3.901E 01	1.944E 01	1.738E 01	-7.167E 02	-4.465E 02	-3.250E 02	-1.234E 02	1.096E 03	3.130E 01	4.656E-02	2.799E 01	4.163E-02
3.929E 01	1.900E 01	1.834E 01	-7.412E 02	-4.677E 02	-3.328E 02	-1.349E 02	1.128E 03	3.060E 01	4.551E-02	2.953E 01	4.392E-02
3.950E 01	1.867E 01	1.273E 01	-7.554E 02	-4.824E 02	-3.390E 02	-1.434E 02	1.153E 03	3.007E 01	4.473E-02	2.050E 01	3.050E-02
3.978E 01	1.980E 01	5.200E 00	-7.809E 02	-5.026E 02	-3.479E 02	-1.546E 02	1.185E 03	3.189E 01	4.743E-02	8.374E 00	1.246E-02
4.000E 01	2.068E 01	5.164E 00	-8.058E 02	-5.188E 02	-3.555E 02	-1.633E 02	1.211E 03	3.331E 01	4.954E-02	8.316E 00	1.237E-02
4.040E 01	2.385E 01	5.098E 00	-8.523E 02	-5.492E 02	-3.703E 02	-1.789E 02	1.258E 03	3.840E 01	5.712E-02	8.209E 00	1.221E-02
4.041E 01	2.393E 01	5.096E 00	-8.533E 02	-5.500E 02	-3.707E 02	-1.793E 02	1.259E 03	3.853E 01	5.731E-02	8.206E 00	1.221E-02
4.128E 01	3.078E 01	4.953E 00	-9.660E 02	-6.266E 02	-4.068E 02	-2.197E 02	1.361E 03	4.956E 01	7.372E-02	7.976E 00	1.186E-02
4.134E 01	3.129E 01	4.942E 00	-9.750E 02	-6.330E 02	-4.098E 02	-2.233E 02	1.369E 03	5.039E 01	7.495E-02	7.959E 00	1.184E-02
4.150E 01	3.255E 01	5.734E 00	-9.970E 02	-6.491E 02	-4.172E 02	-2.320E 02	1.388E 03	5.242E 01	7.796E-02	9.233E 00	1.373E-02
4.246E 01	1.995E 01	1.051E 01	-1.075E 03	-7.622E 02	-4.647E 02	-2.875E 02	1.503E 03	3.213E 01	4.778E-02	1.693E 01	2.518E-02
4.406E 01	2.511E 01	1.848E 01	-1.111E 03	-9.343E 02	-5.451E 02	-3.892E 02	1.697E 03	4.043E 01	6.014E-02	2.976E 01	4.426E-02
4.431E 01	2.591E 01	1.874E 01	-1.117E 03	-9.619E 02	-5.572E 02	-4.048E 02	1.727E 03	4.172E 01	6.206E-02	3.018E 01	4.488E-02
4.478E 01	2.741E 01	1.922E 01	-1.129E 03	-1.008E 03	-5.794E 02	-4.288E 02	1.784E 03	4.414E 01	6.565E-02	3.096E 01	4.605E-02
4.480E 01	2.749E 01	1.928E 01	-1.129E 03	-1.010E 03	-5.806E 02	-4.295E 02	1.787E 03	4.426E 01	6.584E-02	3.100E 01	4.611E-02
4.626E 01	2.157E 01	2.078E 01	-1.114E 03	-1.128E 03	-6.502E 02	-4.775E 02	1.966E 03	3.473E 01	5.165E-02	3.346E 01	4.976E-02
4.730E 01	1.734E 01	2.186E 01	-1.058E 03	-1.201E 03	-7.006E 02	-5.001E 02	2.095E 03	2.793E 01	4.154E-02	3.521E 01	5.237E-02
4.731E 01	1.731E 01	2.181E 01	-1.058E 03	-1.201E 03	-7.011E 02	-5.003E 02	2.096E 03	2.787E 01	4.145E-02	3.513E 01	5.225E-02
4.811E 01	1.035E 01	1.752E 01	-9.994E 02	-1.257E 03	-7.403E 02	-5.169E 02	2.196E 03	1.667E 01	2.479E-02	2.821E 01	4.195E-02
4.875E 01	1.407E 01	1.407E 01	-9.503E 02	-1.301E 03	-7.721E 02	-5.291E 02	2.276E 03	2.266E 01	3.371E-02	2.266E 01	3.371E-02
4.928E 01	1.122E 01	1.122E 01	-9.154E 02	-1.337E 03	-7.985E 02	-5.385E 02	2.343E 03	1.808E 01	2.689E-02	1.808E 01	2.689E-02
5.069E 01	2.152E 01	2.152E 01	-7.943E 02	-1.441E 03	-8.699E 02	-5.712E 02	2.520E 03	3.466E 01	5.156E-02	3.466E 01	5.156E-02
5.279E 01	2.830E 01	2.830E 01	-5.200E 02	-1.628E 03	-9.788E 02	-6.487E 02	2.787E 03	4.557E 01	6.778E-02	4.557E 01	6.778E-02
5.329E 01	3.045E 01	3.045E 01	-4.437E 02	-1.674E 03	-1.005E 03	-6.692E 02	2.850E 03	4.904E 01	7.293E-02	4.904E 01	7.293E-02
5.403E 01	3.204E 01	3.204E 01	-3.243E 02	-1.740E 03	-1.045E 03	-7.012E 02	2.945E 03	5.160E 01	7.675E-02	5.160E 01	7.675E-02
5.404E 01	3.206E 01	3.206E 01	-3.227E 02	-1.747E 03	-1.045E 03	-7.017E 02	2.946E 03	5.163E 01	7.680E-02	5.163E 01	7.680E-02
5.480E 01	3.370E 01	3.370E 01	-1.952E 02	-1.830E 03	-1.086E 03	-7.442E 02	3.044E 03	5.427E 01	8.072E-02	5.427E 01	8.072E-02
5.576E 01	3.433E 01	3.433E 01	-3.174E 01	-1.950E 03	-1.138E 03	-8.119E 02	3.167E 03	5.528E 01	8.223E-02	5.528E 01	8.223E-02
5.622E 01	3.463E 01	3.463E 01	5.629E 02	-2.010E 03	-1.160E 03	-8.497E 02	3.208E 03	5.576E 01	8.294E-02	5.576E 01	8.294E-02
5.623E 01	3.464E 01	3.464E 01	5.652E 02	-2.011E 03	-1.161E 03	-8.506E 02	3.209E 03	5.578E 01	8.296E-02	5.578E 01	8.296E-02
5.628E 01	3.275E 01	3.467E 01	5.750E 02	-2.018E 03	-1.163E 03	-8.554E 02	3.217E 03	5.274E 01	7.844E-02	5.583E 01	8.305E-02
5.642E 01	3.275E 01	3.476E 01	5.976E 02	-2.037E 03	-1.169E 03	-8.676E 02	3.234E 03	5.274E 01	7.844E-02	5.598E 01	8.327E-02
5.650E 01	3.482E 01	3.482E 01	6.116E 02	-2.047E 03	-1.173E 03	-8.746E 02	3.245E 03	5.607E 01	8.339E-02	5.607E 01	8.339E-02
5.678E 01	3.500E 01	3.500E 01	6.572E 02	-2.083E 03	-1.185E 03	-8.988E 02	3.280E 03	5.636E 01	8.383E-02	5.636E 01	8.383E-02
5.701E 01	3.505E 01	3.505E 01	6.913E 02	-2.112E 03	-1.194E 03	-9.181E 02	3.309E 03	5.644E 01	8.395E-02	5.644E 01	8.395E-02
5.773E 01	3.520E 01	3.520E 01	7.865E 02	-2.205E 03	-1.226E 03	-9.791E 02	3.402E 03	5.668E 01	8.431E-02	5.668E 01	8.431E-02
5.875E 01	3.529E 01	3.529E 01	8.681E 02	-2.329E 03	-1.270E 03	-1.059E 03	3.532E 03	5.683E 01	8.452E-02	5.683E 01	8.452E-02
6.076E 01	3.270E 01	3.270E 01	8.761E 02	-2.566E 03	-1.359E 03	-1.207E 03	3.790E 03	5.266E 01	7.832E-02	5.266E 01	7.832E-02
6.218E 01	3.069E 01	3.069E 01	8.761E 02	-2.731E 03	-1.427E 03	-1.304E 03	3.972E 03	4.943E 01	7.352E-02	4.943E 01	7.352E-02
6.464E 01	2.375E 01	2.375E 01	8.761E 02	-3.022E 03	-1.559E 03	-1.463E 03	4.289E 03	3.824E 01	5.668E-02	3.824E 01	5.688E-02

READING = 0094 BLOCK = 64 TIME = 180.042 MACH 5.2 PI = 417.499 TT = 2246.1

XABS	P-IU	P-OH	PDA	WUX	W-IB	Q-OB	CAWALL	P-IB/P8U	P-IB/PTO	P-OB/P8U	P-OB/PTO
6.502E 01	2.190E 01	2.269E 01	8.761E 02	-3.068E 03	-1.580E 03	-1.487E 03	4.337E 03	3.527E 01	5.246E-02	3.654E 01	5.434E-02
6.506E 01	2.190E 01	2.256E 01	8.761E 02	-3.073E 03	-1.583E 03	-1.490E 03	4.342E 03	3.527E 01	5.246E-02	3.636E 01	5.407E-02
6.526E 01	2.066E 01	2.201E 01	8.761E 02	-3.096E 03	-1.594E 03	-1.502E 03	4.368E 03	3.327E 01	4.948E-02	3.545E 01	5.272E-02
6.692E 01	1.036E 01	8.887E 00	1.048E 03	-3.268E 03	-1.677E 03	-1.591E 03	4.584E 03	1.669E 01	2.482E-02	1.431E 01	2.129E-02
6.759E 01	7.872E 00	8.977E 00	1.231E 03	-3.330E 03	-1.704E 03	-1.627E 03	4.665E 03	1.268E 01	1.886E-02	1.446E 01	2.150E-02
6.836E 01	5.010E 00	7.108E 00	1.429E 03	-3.400E 03	-1.731E 03	-1.669E 03	4.760E 03	8.068E 00	1.200E-02	1.145E 01	1.703E-02
6.908E 01	4.068E 00	5.360E 00	1.567E 03	-3.463E 03	-1.753E 03	-1.710E 03	4.848E 03	6.551E 00	9.744E-03	8.631E 00	1.284E-02
6.969E 01	3.270E 00	3.770E 00	1.656E 03	-3.512E 03	-1.770E 03	-1.742E 03	4.922E 03	5.266E 00	7.832E-03	6.072E 00	9.031E-03
7.064E 01	2.630E 00	1.295E 00	1.746E 03	-3.573E 03	-1.794E 03	-1.779E 03	5.036E 03	4.235E 00	6.299E-03	2.085E 00	3.102E-03
7.107E 01	2.340E 00	1.535E 00	1.775E 03	-3.596E 03	-1.804E 03	-1.792E 03	5.088E 03	3.768E 00	5.605E-03	2.472E 00	3.677E-03
7.260E 01	1.648E 00	2.390E 00	1.870E 03	-3.670E 03	-1.835E 03	-1.834E 03	5.273E 03	2.654E 00	3.947E-03	3.849E 00	5.725E-03
7.275E 01	1.580E 00	2.108E 00	1.878E 03	-3.677E 03	-1.838E 03	-1.839E 03	5.290E 03	2.544E 00	3.784E-03	3.395E 00	5.050E-03
7.350E 01	1.805E 00	7.000E-01	1.929E 03	-3.713E 03	-1.850E 03	-1.863E 03	5.374E 03	2.907E 00	4.324E-03	1.127E 00	1.677E-03
7.350E 01	1.807E 00	6.925E-01	1.931E 03	-3.713E 03	-1.850E 03	-1.863E 03	5.375E 03	2.909E 00	4.327E-03	1.115E 00	1.659E-03
7.483E 01	2.205E 00	0.000	1.973E 03	-3.762E 03	-1.869E 03	-1.914E 03	5.427E 03	3.551E 00	5.281E-03	0.000	0.000
7.768E 01	2.040E 00	0.000	2.058E 03	-3.868E 03	-1.898E 03	-1.989E 03	5.525E 03	3.285E 00	4.886E-03	0.000	0.000
8.158E 01	1.410E 00	0.000	2.132E 03	-3.913E 03	-1.924E 03	-1.989E 03	5.630E 03	2.271E 00	3.377E-03	0.000	0.000
8.439E 01	1.475E 00	0.000	2.164E 03	-3.933E 03	-1.943E 03	-1.989E 03	5.684E 03	2.375E 00	3.533E-03	0.000	0.000
8.725E 01	1.975E 00	0.000	2.206E 03	-3.967E 03	-1.977E 03	-1.989E 03	5.707E 03	3.180E 00	4.731E-03	0.000	0.000
8.726E 01	1.976E 00	0.000	2.206E 03	-3.967E 03	-1.977E 03	-1.989E 03	5.707E 03	3.182E 00	4.733E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.176E 02	1.176E 02	2.227E-03	4.945E-02
4.041E 01	1.681E-01	1.177E 02	2.237E-03	5.243E-02
4.128E 01	1.444E 01	1.322E 02	2.350E-03	5.543E-02
4.134E 01	1.083E 00	1.333E 02	2.358E-03	5.623E-02
4.150E 01	2.646E 00	1.359E 02	2.378E-03	5.645E-02
4.246E 01	1.576E 01	1.517E 02	2.451E-03	5.657E-02
4.406E 01	2.543E 01	1.771E 02	2.466E-03	5.764E-02
4.431E 01	3.863E 00	1.810E 02	2.495E-03	5.719E-02
4.478E 01	7.214E 00	1.882E 02	2.514E-03	5.865E-02
4.480E 01	3.719E-01	1.885E 02	2.515E-03	5.804E-02
4.626E 01	2.202E 01	2.106E 02	2.521E-03	5.467E-02
4.730E 01	1.490E 01	2.255E 02	2.477E-03	4.971E-02
4.731E 01	1.316E-01	2.257E 02	2.477E-03	4.970E-02
4.811E 01	1.092E 01	2.366E 02	2.429E-03	4.513E-02
4.875E 01	8.251E 00	2.448E 02	2.387E-03	4.076E-02
4.928E 01	6.401E 00	2.512E 02	2.357E-03	3.746E-02
5.069E 01	1.537E 01	2.666E 02	2.235E-03	2.969E-02
5.279E 01	1.811E 01	2.847E 02	2.453E-03	4.529E-02
5.329E 01	3.357E 00	2.881E 02	2.512E-03	4.521E-02
5.403E 01	4.919E 00	2.930E 02	2.934E-03	3.941E-02
5.404E 01	6.833E-02	2.930E 02	3.011E-03	3.806E-02
5.480E 01	4.997E 00	2.980E 02	3.005E-03	3.765E-02
5.576E 01	5.758E 00	3.038E 02	3.032E-03	3.624E-02
5.622E 01	1.708E 00	3.055E 02	3.209E-03	3.205E-02
5.625E 01	4.769E-02	3.056E 02	3.209E-03	3.205E-02
5.628E 01	2.651E-01	3.058E 02	3.140E-03	3.315E-02
5.642E 01	6.726E-01	3.065E 02	3.163E-03	3.272E-02
5.650E 01	3.927E-01	3.069E 02	3.298E-03	3.095E-02
5.678E 01	1.360E 00	3.082E 02	3.151E-03	3.317E-02
9.701E 01	1.080E 00	3.093E 02	3.198E-03	3.313E-02
5.773E 01	3.461E 00	3.128E 02	3.155E-03	3.307E-02
5.875E 01	4.879E 00	3.177E 02	3.169E-03	3.295E-02
6.076E 01	1.047E 01	3.281E 02	3.127E-03	3.420E-02
6.218E 01	8.424E 00	3.366E 02	3.138E-03	3.416E-02
6.464E 01	1.716E 01	3.722E 02	3.155E-03	3.356E-02
6.502E 01	2.909E 00	3.751E 02	3.137E-03	3.269E-02
6.506E 01	3.127E-01	3.754E 02	3.137E-03	3.266E-02
6.526E 01	1.571E 00	3.770E 02	3.127E-03	3.239E-02
6.692E 01	1.265E 01	3.897E 02	2.962E-03	2.133E-02
6.759E 01	4.447E 00	3.941E 02	2.935E-03	1.958E-02
6.836E 01	4.705E 00	3.988E 02	2.861E-03	1.572E-02
6.908E 01	3.829E 00	4.026E 02	2.839E-03	1.314E-02
6.969E 01	2.813E 00	4.054E 02	2.796E-03	1.070E-02
7.064E 01	3.432E 00	4.089E 02	2.709E-03	6.927E-03
7.107E 01	1.296E 00	4.102E 02	2.706E-03	6.656E-03
7.260E 01	4.626E 00	4.148E 02	2.707E-03	7.058E-03
7.275E 01	4.260E-01	4.152E 02	2.693E-03	6.588E-03
7.350E 01	1.808E 00	4.170E 02	2.631E-03	4.867E-03
7.350E 01	3.043E-03	4.170E 02	2.630E-03	4.877E-03
7.483E 01	1.176E 00	4.182E 02	2.711E-03	7.516E-03
7.768E 01	2.556E 00	4.208E 02	2.688E-03	7.053E-03
8.158E 01	2.379E 00	4.231E 02	2.616E-03	5.262E-03
8.439E 01	1.106E 00	4.243E 02	2.611E-03	5.443E-03
8.725E 01	5.105E-01	4.246E 02	2.645E-03	6.776E-03
8.726E 01	0.000	4.246E 02	2.645E-03	6.779E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1599.	(LBF)
MEASURED THRUST	1678.	(LBF)
CALCULATED SPECIFIC IMPULSE	2704.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2837.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5490	
MEASURED THRUST COEFFICIENT	0.5761	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6939.	(LBF)
NET THRUST	1703.	(LBF)
SPECIFIC IMPULSE	2880.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5847	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.6	(LBF)
INLET MOMENTUM CHANGE	-969.8	(LBF)
COMBUSTOR FRICTION DRAG	219.0	(LBF)
COMBUSTOR STRUT DRAG	107.88	(LBF)
COMBUSTOR MOMENTUM CHANGE	1363.	(LBF)
NOZZLE FRICTION DRAG	69.71	(LBF)
NOZZLE STRUT DRAG	53.19	(LBF)
NOZZLE MOMENTUM CHANGE	1207.	(LBF)
NOZZLE PRESSURE INTEGRAL	1330.	(LBF)
EXTERNAL FRICTION DRAG	52.45	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1298.	(LBF)
TOTAL EXTERNAL DRAG	-1351.	(LBF)
TOTAL STRUT DRAG	161.08	(LBF)
CAVITY FORCE	-1419.	(LBF)
CALCULATED LOAD CELL FORCE	-1170.	(LBF)
MEASURED LOAD CELL FORCE	-1092.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -134.5,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2809	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.165	(IN)
NOZZLE SHROUD TRAILING EDGE	73.505	(IN)
NOZZLE PLUG TRAILING EDGE	87.257	(IN)
STRUT LEADING EDGE	56.421	(IN)
STRUT TRAILING EDGE	65.021	(IN)
COMBUSTOR EXIT	62.181	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8659	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2803	
DELTA PT2	0.1404	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4588	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2853	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9066	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9186	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9253	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8917	
ENTHALPY AT PO - SUPERSONIC	-17.05	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-0.72	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0179
EQUIVALENCE RATIO	0.594
COMBUSTION EFFICIENCY	0.904
TOTAL PRESSURE RATIO	0.2601
COMBUSTOR EFFECTIVENESS	0.8481
INJECTOR DISCHARGE COEFFICIENTS	0.8358, 0.7148,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9335
NOZZLE COEFFICIENT - CT	0.8656
PROCESS EFFICIENCY	0.8754
KINETIC ENERGY EFFICIENCY	0.8521

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.266	
1C	44.300	
2A	48.741	
2C	46.250	
3A	54.031	E
3B	56.216	E
4	44.766	

Reading 94

t = 214.24 sec.

Test cell pressure was high which resulted in increased pressures in the AIM nozzle.

2/28/75

READING = 0094 BLOCK = 122 TIME = 214.242 MACH 5.2 PT = 299.750 TT = 2917.7

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	299.750	2918	645.8(772)	1.2961	28.867	2552											
0.000	0.385	507	-7.1(122)	1.3989	28.866	1105	5.171	5716	1.882	0.08105	17.979	0.8661	3280	7.200	182.4		
SPIKE TIP NS		2	0 6														
0.600	14.750	2918	645.8(772)	1.2960	28.866	2552											
0.600	13.559	2862	629.1(756)	1.2978	28.866	2529	0.362	916	2.090	0.08105	17.979	0.8661	3519	1.154	195.8		
WIND TUNNEL		3	0 0														
0.000	299.750	2918	645.8(772)	1.2961	28.867	2552											
0.000	0.437	526	-2.6(127)	1.3988	28.866	1125	5.061	5696	1.882	0.08839	19.607	0.8661	3568	7.825	182.0		
SPIKE TIP NS		4	0 0														
0.600	14.750	2918	645.8(772)	1.2960	28.866	2552											
0.600	13.301	2849	625.3(752)	1.2982	28.866	2524											
							0.402	1014	2.090	0.08839	19.607	0.8661	3568	1.392	182.0		
INLET THROAT		5	0 3														
40.400	128.120	2828	619.0(746)	1.2989	28.866	2515											
40.400	13.195	1629	277.2(406)	1.3419	28.866	1940	2.131	4135	1.932	0.62569	19.607	0.1122	2899	43.849	147.9		
INLET UPNRSK		6	0 3														
40.400	128.120	2828	619.0(746)	1.2989	28.866	2515											
40.400	13.001	1623	275.6(405)	1.3422	28.866	1937	2.140	4145	1.932	0.62031	19.607	0.1234	2937	39.959	149.8		
INLET DNNRSK		7	0 4														
40.400	80.986	2828	619.0(746)	1.2989	28.866	2515											
40.400	67.075	2708	583.0(710)	1.3028	28.866	2465	0.544	1340	1.963	0.62031	19.607	0.1234	2937	12.922	149.8		
COMBUSTOR	0	8	1 4														
40.410	128.715	2828	618.9(746)	1.2989	28.866	2515											
40.410	15.287	1689	293.5(423)	1.3390	28.866	1974	2.045	4035	1.931	0.68226	19.607	0.1122	2898	42.785	147.8		
COMBUSTOR	0	9	2 3														
41.274	111.408	2815	614.9(742)	1.2994	28.866	2510											
41.274	17.162	1794	322.2(451)	1.3343	28.866	2030	1.885	3827	1.940	0.68400	19.607	0.1119	2824	40.681	144.0		
COMBUSTOR	0	10	3 3														
41.339	110.255	2814	614.6(741)	1.2994	28.866	2509											
41.339	17.346	1803	324.6(454)	1.3340	28.866	2035	1.872	3809	1.940	0.68477	19.607	0.1118	2818	40.537	143.7		
COMBUSTOR	0	11	4 3														
41.500	107.402	2811	613.8(741)	1.2995	28.866	2508											
41.500	17.790	1824	330.5(460)	1.3332	28.866	2047	1.840	3765	1.942	0.68584	19.607	0.1116	2803	40.124	142.9		
COMBUSTOR	0	12	5 5														
42.460	96.826	2793	608.5(735)	1.3000	28.866	2501											
42.460	19.071	1892	349.2(478)	1.3308	28.866	2082	1.730	3602	1.947	0.67835	19.607	0.1128	2746	37.974	140.1		
COMBUSTOR	0	13	6 4														
44.059	89.254	2762	599.2(726)	1.3010	28.866	2488											
44.059	19.192	1910	354.3(483)	1.3299	28.866	2092	1.674	3501	1.949	0.65700	19.607	0.1165	2706	35.742	138.0		
COMBUSTOR	0	14	7 4														
44.310	88.129	2757	597.8(725)	1.3012	28.866	2486											
44.310	19.307	1915	355.8(485)	1.3297	28.866	2094	1.662	3480	1.950	0.65521	19.607	0.1168	2698	35.433	137.6		
COMBUSTOR	0	15	8 3														
44.774	85.946	2750	595.5(723)	1.3014	28.866	2483											
44.774	19.616	1929	359.6(489)	1.3291	28.866	2102	1.635	3436	1.951	0.65258	19.607	0.1173	2683	34.842	136.8		
COMBUSTOR	0	16	9 3														
44.800	85.808	2749	595.4(723)	1.3014	28.866	2482											
44.800	19.632	1930	359.8(489)	1.3291	28.866	2102	1.633	3433	1.951	0.65231	19.607	0.1174	2682	34.802	136.8		
COMBUSTOR	0	17	10 4														
46.260	80.857	2731	590.0(717)	1.3020	28.866	2475											
46.260	18.336	1912	354.9(484)	1.3298	28.866	2093	1.639	3430	1.953	0.61433	19.607	0.1246	2675	32.746	136.5		
COMBUSTOR	0	18	11 3														
47.299	80.350	2721	587.1(714)	1.3023	28.866	2471											
47.299	15.886	1841	335.2(464)	1.3325	28.866	2056											
							1.727	3550	1.952	0.57225	19.607	0.1338	2708	31.574	138.1		

READING = 0094 BLOCK = 122 TIME = 214.242 MACH 5.2 PT = 299.750 TT = 2917.7

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
47.310	80.359	2721	587.1(714)	1.3023	28.866	2471											
47.310	15.858	1840	334.9(464)	1.3325	28.866	2055	1.729	3552	1.952	0.57179	19.607	0.1339	2708	31.563	138.1		
COMBUSTOR	0	20	13 4														
48.110	80.970	2714	584.9(712)	1.3026	28.866	2468											
48.110	13.685	1765	314.3(443)	1.3356	28.866	2015	1.826	3680	1.951	0.53297	19.607	0.1436	2746	30.480	140.1		
COMBUSTOR	0	21	14 21														
48.739	51.429	2641	608.7(819)	1.3096	24.165	2666											
48.739	11.594	1834	337.3(549)	1.3383	24.165	2246	1.641	3685	2.280	0.50082	19.908	0.1552	2741	28.680	137.7	0.51	0.07
COMBUSTOR	0	22	15 21														
48.749	56.935	2493	608.7(771)	1.3164	24.047	2605											
48.749	11.559	1676	337.0(500)	1.3465	24.047	2160	1.707	3687	2.255	0.50017	19.908	0.1554	2742	28.659	137.7	0.51	0.01
COMBUSTOR	0	23	16 21														
49.279	55.445	2467	607.3(762)	1.3175	24.027	2593											
49.279	9.712	1595	318.5(474)	1.3505	24.027	2111	1.801	3801	2.254	0.46778	19.908	0.1662	2766	27.634	138.9	0.51	0.00
COMBUSTOR	0	24	17 21														
50.689	56.087	2454	603.8(758)	1.3180	24.024	2587											
50.689	11.606	1656	339.0(494)	1.3477	24.024	2149	1.694	3640	2.252	0.39868	19.908	0.1950	2832	22.552	142.2	0.51	0.00
COMBUSTOR	0	25	18 21														
52.789	52.880	2427	595.9(754)	1.3190	23.852	2583											
52.789	7.250	1469	278.9(438)	1.3569	23.852	2039	1.954	3983	2.266	0.32863	20.022	0.2379	2920	20.340	145.8	0.53	0.00
COMBUSTOR	0	26	19 21														
53.289	53.206	2416	595.0(750)	1.3195	23.845	2578											
53.289	7.600	1478	284.4(441)	1.3566	23.845	2045	1.928	3942	2.264	0.31520	20.022	0.2480	2936	19.311	146.6	0.53	0.00
COMBUSTOR	0	27	20 4														
54.039	44.690	2611	593.6(814)	1.3105	24.028	2661											
54.039	8.767	1749	303.2(525)	1.3417	24.028	2204	1.730	3812	2.301	0.29712	20.022	0.2631	2963	17.602	148.0	0.53	0.08
COMBUSTOR	0	28	21 4														
54.799	38.826	2826	592.3(885)	1.3006	24.236	2746											
54.799	9.950	2040	322.6(618)	1.3278	24.236	2357	1.558	3673	2.333	0.28097	20.022	0.2782	2995	16.039	149.6	0.53	0.17
COMBUSTOR	0	29	22 3														
55.760	37.840	2859	590.7(896)	1.2990	24.272	2758											
55.760	9.003	2029	305.6(614)	1.3278	24.273	2349	1.608	3777	2.337	0.26319	20.022	0.2978	3035	15.447	151.6	0.53	0.19
COMBUSTOR	0	30	23 5														
56.224	30.471	3277	590.0(1036)	1.2784	24.692	2904											
56.224	8.847	2456	298.2(751)	1.3073	24.695	2542	1.503	3820	2.386	0.21245	20.022	0.3679	3183	12.614	159.0	0.53	0.37
COMBUSTOR	0	31	24 3														
56.279	30.751	3255	589.9(1029)	1.2795	24.670	2897											
56.279	8.321	2417	292.9(738)	1.3089	24.673	2525	1.527	3855	2.384	0.21186	20.022	0.3690	3185	12.691	159.1	0.53	0.36
COMBUSTOR	0	32	25 3														
56.419	30.621	3262	589.7(1031)	1.2791	24.678	2899											
56.419	8.252	2421	291.3(739)	1.3087	24.681	2526	1.529	3864	2.385	0.21038	20.022	0.3717	3190	12.629	159.3	0.53	0.36
COMBUSTOR	0	33	26 4														
56.499	31.133	3258	589.6(1030)	1.2794	24.674	2898											
56.499	8.276	2410	288.9(735)	1.3091	24.677	2521	1.539	3879	2.383	0.21273	20.022	0.3675	3193	12.822	159.5	0.53	0.36
COMBUSTOR	0	34	27 3														
56.779	31.637	3239	589.2(1025)	1.2803	24.656	2892											
56.779	8.008	2366	280.8(721)	1.3109	24.658	2501	1.572	3930	2.381	0.21202	20.022	0.3687	3201	12.948	159.9	0.53	0.35
COMBUSTOR	0	35	28 4														
57.005	30.779	3316	588.8(1049)	1.2763	24.735	2916											
57.005	8.476	2478	290.2(757)	1.3060	24.739	2550	1.516	3865	2.388	0.21162	20.022	0.3694	3207	12.711	160.2	0.53	0.39
COMBUSTOR	0	36	29 4														
57.729	28.518	3547	587.6(1127)	1.2632	24.983	2986											
57.729	10.000	2826	322.8(873)	1.2907	24.993	2694	1.351	3640	2.407	0.20831	20.022	0.3753	3226	11.783	161.1	0.53	0.49
COMBUSTOR	0	37	30 4														
58.749	28.242	3613	585.9(1150)	1.2592	25.059	3004											
58.749	10.275	2909	325.2(900)	1.2867	25.071	2724	1.326	3612	2.412	0.20698	20.022	0.3777	3242	11.618	161.9	0.53	0.52

READING = 0094 BLOCK = 122 TIME = 214.242 MACH 5.2 PT = 299.750 TT = 2917.7 PAGE 3

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Θ	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	3														
60.759	29.187	3570	582.8	(1135)	1.2617	25.022	2992											
60.759	10.462	2861	321.5	(884)	1.2889	25.032	2706	1.336	3615	2.406	0.21418	20.022	0.3650	3228	12.034	161.2	0.53	0.51
COMBUSTOR	0	39	32	3														
62.179	29.559	3579	580.6	(1138)	1.2611	25.038	2994											
62.179	11.100	2899	329.5	(897)	1.2874	25.048	2722	1.302	3545	2.405	0.21999	20.022	0.3553	3216	12.119	160.6	0.53	0.51
COMBUSTOR	0	40	33	4														
64.643	28.773	3426	576.4	(1086)	1.2698	24.886	2948											
64.643	9.390	2675	304.6	(822)	1.2972	24.892	2632	1.401	3687	2.398	0.20852	20.022	0.3749	3196	11.949	159.6	0.53	0.45
COMBUSTOR	0	41	34	4														
65.019	26.121	3490	575.6	(1107)	1.2658	24.957	2967											
65.019	9.352	2789	319.6	(861)	1.2923	24.965	2679	1.336	3579	2.410	0.19386	20.022	0.4032	3193	10.783	159.5	0.53	0.48
COMBUSTOR	REGEN	42	35	3														
65.019	26.121	3619	625.2	(1154)	1.2600	24.952	3014											
65.019	9.950	2942	373.6	(914)	1.2867	24.964	2746	1.292	3548	2.424	0.19386	20.022	0.4032	3235	10.688	161.6	0.53	0.48
NOZZLE AE		43	36	3														
87.255	26.121	3490	575.6	(1104)	1.2658	24.957	2967											
87.255	0.605	1437	-128.0	(418)	1.3476	24.966	1964	3.022	5934	2.410	0.04036	20.022	1.9378	3993	3.721	199.4	0.53	0.48
NOZZLE PO		44	37	3														
87.255	26.121	3490	575.6	(1104)	1.2658	24.957	2967											
87.255	0.437	1320	-163.7	(380)	1.3543	24.966	1887	3.223	6082	2.410	0.03251	20.022	2.4047	4054	3.073	202.5	0.53	0.48
NOZZLE AE REGEN		45	38	4														
87.255	26.121	3619	625.2	(1154)	1.2600	24.952	3014											
87.255	0.628	1517	-103.0	(440)	1.3431	24.966	2014	2.997	6036	2.424	0.04036	20.022	1.9371	4068	3.786	203.2	0.53	0.48
NOZZLE PO REGEN		46	39	4														
87.255	26.121	3619	625.2	(1154)	1.2600	24.952	3014											
87.255	0.437	1382	-144.9	(398)	1.3507	24.966	1928	3.220	6207	2.424	0.03170	20.022	2.4662	4139	3.058	206.7	0.53	0.48
FICTIVE COMBUSTR		66	59	0														
65.019	128.120	4563	575.6	(1475)	1.2073	26.191	3234											
65.019	0.437	1327	-594.7	(369)	1.3419	26.309	1834	4.172	7653	2.325	0.04289	20.022	1.8225	4966	5.101	248.0	0.55	1.00
FICTIVE NOZZLE		67	60	0														
87.255	29.317	2103	420.5	(633)	1.3277	24.376	2386											
87.255	0.744	793	14.0	(226)	1.3905	24.376	1499	3.008	7633	2.236	0.04036	20.022	1.9371	0	4.682	237.2	0.49	0.48

READING = 0094 BLOCK = 122 TIME = 214.242 MACH 5.2 PT = 299.750 TT = 2917.7

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.115E 00	0.000	-3.613E-01	0.000	0.000	0.000	2.470E-02	2.553E 00	3.720E-03	0.000	0.000
1.836E 01	1.115E 00	0.000	-3.702E 01	0.000	0.000	0.000	1.634E 02	2.553E 00	3.720E-03	0.000	0.000
3.070E 01	2.015E 00	0.000	-1.639E 02	0.000	0.000	0.000	5.053E 02	4.614E 00	6.722E-03	0.000	0.000
3.508E 01	3.063E 00	0.000	-3.285E 02	0.000	0.000	0.000	6.804E 02	7.013E 00	1.022E-02	0.000	0.000
3.516E 01	3.067E 00	4.348E 00	-3.756E 02	0.000	0.000	0.000	6.838E 02	7.022E 00	1.023E-02	9.949E 00	1.450E-02
3.516E 01	3.067E 00	4.332E 00	-3.757E 02	0.000	0.000	0.000	6.841E 02	7.022E 00	1.023E-02	9.918E 00	1.445E-02
3.555E 01	3.085E 00	3.441E 00	-3.813E 02	0.000	0.000	0.000	7.229E 02	7.063E 00	1.029E-02	7.880E 00	1.148E-02
3.583E 01	3.088E 00	2.800E 00	-3.889E 02	-2.157E 02	-2.157E 02	0.000	7.512E 02	7.070E 00	1.030E-02	6.411E 00	9.341E-03
3.606E 01	3.090E 00	3.797E 00	-3.951E 02	-2.185E 02	-2.185E 02	0.000	7.749E 02	7.075E 00	1.031E-02	8.694E 00	1.267E-02
3.648E 01	3.469E 00	5.609E 00	-4.037E 02	-2.239E 02	-2.239E 02	0.000	8.185E 02	7.944E 00	1.157E-02	1.284E 01	1.871E-02
3.701E 01	3.300E 00	7.896E 00	-4.139E 02	-2.816E 02	-2.310E 02	-5.060E 01	8.747E 02	7.556E 00	1.101E-02	1.808E 01	2.634E-02
3.729E 01	4.219E 00	9.100E 00	-4.195E 02	-3.002E 02	-2.348E 02	-6.540E 01	9.045E 02	9.660E 00	1.407E-02	2.084E 01	3.036E-02
3.803E 01	6.660E 00	1.093E 01	-4.592E 02	-3.498E 02	-2.457E 02	-1.041E 02	9.855E 02	1.525E 01	2.222E-02	2.504E 01	3.648E-02
3.831E 01	8.685E 00	1.162E 01	-4.778E 02	-3.688E 02	-2.502E 02	-1.186E 02	1.017E 03	1.989E 01	2.898E-02	2.662E 01	3.878E-02
3.875E 01	1.189E 01	1.177E 01	-5.142E 02	-3.997E 02	-2.583E 02	-1.414E 02	1.066E 03	2.722E 01	3.966E-02	2.694E 01	3.925E-02
3.878E 01	1.210E 01	1.177E 01	-5.165E 02	-4.018E 02	-2.589E 02	-1.429E 02	1.070E 03	2.770E 01	4.036E-02	2.696E 01	3.928E-02
3.901E 01	1.377E 01	1.266E 01	-5.332E 02	-4.186E 02	-2.637E 02	-1.548E 02	1.096E 03	3.154E 01	4.595E-02	2.900E 01	4.225E-02
3.929E 01	1.340E 01	1.374E 01	-5.492E 02	-4.393E 02	-2.701E 02	-1.692E 02	1.128E 03	3.069E 01	4.472E-02	3.145E 01	4.583E-02
3.950E 01	1.312E 01	1.116E 01	-5.577E 02	-4.554E 02	-2.753E 02	-1.808E 02	1.153E 03	3.005E 01	4.379E-02	2.555E 01	3.723E-02
3.978E 01	1.414E 01	7.750E 00	-5.715E 02	-4.769E 02	-2.828E 02	-1.941E 02	1.185E 03	3.237E 01	4.716E-02	1.774E 01	2.585E-02
4.000E 01	1.494E 01	7.658E 00	-5.833E 02	-4.944E 02	-2.893E 02	-2.051E 02	1.211E 03	3.420E 01	4.983E-02	1.753E 01	2.555E-02
4.040E 01	1.728E 01	7.491E 00	-6.076E 02	-5.266E 02	-3.018E 02	-2.248E 02	1.258E 03	3.939E 01	5.739E-02	1.715E 01	2.499E-02
4.041E 01	1.726E 01	7.486E 00	-6.081E 02	-5.275E 02	-3.021E 02	-2.253E 02	1.259E 03	3.952E 01	5.758E-02	1.714E 01	2.498E-02
4.127E 01	2.216E 01	7.126E 00	-6.711E 02	-6.064E 02	-3.325E 02	-2.739E 02	1.361E 03	5.073E 01	7.392E-02	1.631E 01	2.377E-02
4.134E 01	2.252E 01	7.098E 00	-6.765E 02	-6.129E 02	-3.350E 02	-2.780E 02	1.369E 03	5.157E 01	7.515E-02	1.625E 01	2.368E-02
4.150E 01	2.344E 01	7.470E 00	-6.897E 02	-6.294E 02	-3.413E 02	-2.882E 02	1.388E 03	5.366E 01	7.819E-02	1.710E 01	2.492E-02
4.246E 01	1.451E 01	9.687E 00	-7.337E 02	-7.322E 02	-3.810E 02	-3.512E 02	1.503E 03	3.323E 01	4.842E-02	2.218E 01	3.232E-02
4.406E 01	1.882E 01	1.338E 01	-7.842E 02	-9.144E 02	-4.478E 02	-4.667E 02	1.697E 03	4.308E 01	6.278E-02	3.063E 01	4.463E-02
4.431E 01	1.949E 01	1.363E 01	-7.588E 02	-9.425E 02	-4.578E 02	-4.847E 02	1.727E 03	4.463E 01	6.503E-02	3.120E 01	4.547E-02
4.477E 01	2.074E 01	1.409E 01	-7.685E 02	-9.876E 02	-4.761E 02	-5.115E 02	1.784E 03	4.749E 01	6.920E-02	3.227E 01	4.701E-02
4.480E 01	2.081E 01	1.412E 01	-7.691E 02	-9.899E 02	-4.771E 02	-5.128E 02	1.787E 03	4.765E 01	6.943E-02	3.232E 01	4.710E-02
4.626E 01	1.575E 01	1.558E 01	-7.586E 02	-1.094E 03	-5.317E 02	-5.625E 02	1.966E 03	3.607E 01	5.255E-02	3.566E 01	5.196E-02
4.730E 01	1.215E 01	1.661E 01	-7.145E 02	-1.151E 03	-5.678E 02	-5.836E 02	2.095E 03	2.782E 01	4.054E-02	3.804E 01	5.542E-02
4.731E 01	1.211E 01	1.657E 01	-7.139E 02	-1.152E 03	-5.681E 02	-5.838E 02	2.096E 03	2.773E 01	4.041E-02	3.795E 01	5.529E-02
4.811E 01	7.912E 00	1.379E 01	-6.677E 02	-1.195E 03	-5.944E 02	-6.002E 02	2.196E 03	1.812E 01	2.640E-02	3.157E 01	4.599E-02
4.874E 01	1.159E 01	1.159E 01	-6.287E 02	-1.227E 03	-6.141E 02	-6.133E 02	2.275E 03	2.655E 01	3.868E-02	2.655E 01	3.868E-02
4.875E 01	1.156E 01	1.156E 01	-6.281E 02	-1.228E 03	-6.144E 02	-6.135E 02	2.276E 03	2.647E 01	3.856E-02	2.647E 01	3.856E-02
4.928E 01	9.712E 00	9.712E 00	-5.987E 02	-1.255E 03	-6.303E 02	-6.246E 02	2.343E 03	2.224E 01	3.240E-02	2.224E 01	3.240E-02
5.069E 01	1.161E 01	1.161E 01	-5.199E 02	-1.324E 03	-6.700E 02	-6.542E 02	2.520E 03	2.657E 01	3.872E-02	2.657E 01	3.872E-02
5.279E 01	7.250E 00	7.250E 00	-4.161E 02	-1.413E 03	-7.216E 02	-6.914E 02	2.786E 03	1.660E 01	2.419E-02	1.660E 01	2.419E-02
5.329E 01	7.600E 00	7.600E 00	-3.968E 02	-1.432E 03	-7.326E 02	-6.992E 02	2.850E 03	1.740E 01	2.535E-02	1.740E 01	2.535E-02
5.404E 01	8.767E 00	8.767E 00	-3.651E 02	-1.460E 03	-7.482E 02	-7.114E 02	2.946E 03	2.007E 01	2.925E-02	2.007E 01	2.925E-02
5.480E 01	9.950E 00	9.950E 00	-3.289E 02	-1.487E 03	-7.628E 02	-7.238E 02	3.043E 03	2.278E 01	3.319E-02	2.278E 01	3.319E-02
5.576E 01	9.003E 00	9.003E 00	-2.832E 02	-1.519E 03	-7.796E 02	-7.392E 02	3.167E 03	2.061E 01	3.004E-02	2.061E 01	3.004E-02
5.622E 01	8.547E 00	8.547E 00	-1.336E 02	-1.533E 03	-7.863E 02	-7.466E 02	3.209E 03	1.957E 01	2.851E-02	1.957E 01	2.851E-02
5.628E 01	8.150E 00	8.492E 00	-1.312E 02	-1.534E 03	-7.870E 02	-7.475E 02	3.217E 03	1.866E 01	2.719E-02	1.944E 01	2.833E-02
5.642E 01	8.150E 00	8.358E 00	-1.257E 02	-1.538E 03	-7.886E 02	-7.498E 02	3.234E 03	1.866E 01	2.719E-02	1.913E 01	2.787E-02
5.650E 01	8.276E 00	8.276E 00	-1.224E 02	-1.541E 03	-7.896E 02	-7.512E 02	3.245E 03	1.895E 01	2.761E-02	1.895E 01	2.761E-02
5.678E 01	8.000E 00	8.000E 00	-1.118E 02	-1.549E 03	-7.928E 02	-7.566E 02	3.280E 03	1.832E 01	2.669E-02	1.832E 01	2.669E-02
5.700E 01	8.476E 00	8.476E 00	-1.038E 02	-1.557E 03	-7.952E 02	-7.614E 02	3.309E 03	1.941E 01	2.828E-02	1.941E 01	2.828E-02
5.773E 01	1.000E 01	1.000E 01	-7.871E 01	-1.581E 03	-8.024E 02	-7.785E 02	3.402E 03	2.290E 01	3.336E-02	2.290E 01	3.336E-02
5.875E 01	1.027E 01	1.027E 01	-5.523E 01	-1.614E 03	-8.107E 02	-8.033E 02	3.532E 03	2.353E 01	3.428E-02	2.353E 01	3.428E-02
6.076E 01	1.046E 01	1.046E 01	-5.281E 01	-1.677E 03	-8.225E 02	-8.543E 02	3.790E 03	2.396E 01	3.490E-02	2.396E 01	3.490E-02
6.218E 01	1.110E 01	1.110E 01	-5.281E 01	-1.720E 03	-8.307E 02	-8.892E 02	3.972E 03	2.541E 01	3.703E-02	2.541E 01	3.703E-02
6.464E 01	9.390E 00	9.390E 00	-5.281E 01	-1.805E 03	-8.521E 02	-9.533E 02	4.289E 03	2.150E 01	3.133E-02	2.150E 01	3.133E-02
6.502E 01	9.575E 00	9.129E 00	-5.281E 01	-1.820E 03	-8.562E 02	-9.639E 02	4.337E 03	2.192E 01	3.194E-02	2.090E 01	3.046E-02

READING = 0094 BLOCK = 122 TIME = 214.242 MACH 5.2 PT = 299.750 TT = 2917.7

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.506E 01	9.575E 00	9.101E 00	-5.281E 01	-1.822E 03	-8.567E 02	-9.650E 02	4.342E 03	2.192E 01	3.194E-02	2.084E 01	3.036E-02
6.526E 01	9.105E 00	8.962E 00	-5.281E 01	-1.829E 03	-8.589E 02	-9.701E 02	4.368E 03	2.085E 01	3.037E-02	2.052E 01	2.990E-02
6.692E 01	5.200E 00	5.800E 00	2.834E 01	-1.881E 03	-8.752E 02	-1.006E 03	4.584E 03	1.191E 01	1.735E-02	1.328E 01	1.935E-02
6.759E 01	3.976E 00	5.317E 00	1.309E 02	-1.899E 03	-8.808E 02	-1.018E 03	4.665E 03	9.104E 00	1.327E-02	1.218E 01	1.774E-02
6.836E 01	2.570E 00	4.177E 00	2.396E 02	-1.920E 03	-8.867E 02	-1.034E 03	4.760E 03	5.884E 00	8.574E-03	9.563E 00	1.393E-02
6.908E 01	3.195E 00	3.110E 00	3.236E 02	-1.942E 03	-8.919E 02	-1.050E 03	4.848E 03	7.316E 00	1.066E-02	7.121E 00	1.038E-02
6.969E 01	3.725E 00	2.408E 00	3.928E 02	-1.959E 03	-8.961E 02	-1.063E 03	4.922E 03	8.529E 00	1.243E-02	5.514E 00	8.034E-03
7.064E 01	3.505E 00	1.315E 00	4.854E 02	-1.976E 03	-9.027E 02	-1.073E 03	5.036E 03	8.024E 00	1.169E-02	3.011E 00	4.387E-03
7.107E 01	3.405E 00	1.839E 00	5.232E 02	-1.981E 03	-9.056E 02	-1.076E 03	5.088E 03	7.796E 00	1.136E-02	4.211E 00	6.136E-03
7.260E 01	3.915E 00	3.705E 00	6.812E 02	-2.012E 03	-9.147E 02	-1.097E 03	5.273E 03	8.964E 00	1.306E-02	8.483E 00	1.236E-02
7.275E 01	3.965E 00	3.717E 00	6.981E 02	-2.016E 03	-9.154E 02	-1.100E 03	5.290E 03	9.078E 00	1.323E-02	8.512E 00	1.240E-02
7.350E 01	4.097E 00	3.780E 00	8.290E 02	-2.039E 03	-9.191E 02	-1.120E 03	5.374E 03	9.380E 00	1.367E-02	8.655E 00	1.261E-02
7.350E 01	4.097E 00	3.780E 00	8.362E 02	-2.039E 03	-9.191E 02	-1.120E 03	5.375E 03	9.381E 00	1.367E-02	8.656E 00	1.261E-02
7.483E 01	4.330E 00	0.000	9.252E 02	-2.085E 03	-9.247E 02	-1.161E 03	5.427E 03	9.914E 00	1.445E-02	0.000	0.000
7.768E 01	4.600E 00	0.000	1.104E 03	-2.095E 03	-9.341E 02	-1.161E 03	5.525E 03	1.053E 01	1.535E-02	0.000	0.000
8.158E 01	4.775E 00	0.000	1.304E 03	-2.104E 03	-9.429E 02	-1.161E 03	5.630E 03	1.093E 01	1.593E-02	0.000	0.000
8.439E 01	5.025E 00	0.000	1.413E 03	-2.111E 03	-9.505E 02	-1.161E 03	5.684E 03	1.151E 01	1.676E-02	0.000	0.000
8.725E 01	5.745E 00	0.000	1.543E 03	-2.125E 03	-9.646E 02	-1.161E 03	5.707E 03	1.315E 01	1.917E-02	0.000	0.000
8.725E 01	5.747E 00	0.000	1.543E 03	-2.125E 03	-9.646E 02	-1.161E 03	5.707E 03	1.316E 01	1.917E-02	0.000	0.000

READING = 0094 BLOCK = 122 TIME = 214.242 MACH 5.2 PT = 299.750 TT = 2917.7

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.852E 01	9.852E 01	2.566E-03	3.441E-02
4.041E 01	1.319E-01	9.865E 01	2.583E-03	3.797E-02
4.127E 01	1.122E 01	1.099E 02	2.681E-03	3.990E-02
4.134E 01	8.436E-01	1.107E 02	2.688E-03	4.009E-02
4.150E 01	2.087E 00	1.128E 02	2.707E-03	4.050E-02
4.246E 01	1.229E 01	1.251E 02	2.771E-03	4.124E-02
4.406E 01	1.987E 01	1.450E 02	2.800E-03	4.043E-02
4.431E 01	3.044E 00	1.480E 02	2.811E-03	4.047E-02
4.477E 01	5.613E 00	1.536E 02	2.832E-03	4.064E-02
4.480E 01	3.152E-01	1.539E 02	2.833E-03	4.064E-02
4.626E 01	1.720E 01	1.711E 02	2.842E-03	3.830E-02
4.730E 01	1.168E 01	1.828E 02	2.793E-03	3.486E-02
4.731E 01	1.163E-01	1.829E 02	2.792E-03	3.482E-02
4.811E 01	8.546E 00	1.915E 02	2.735E-03	3.160E-02
4.874E 01	7.285E 00	1.988E 02	3.523E-03	2.424E-02
4.875E 01	1.165E-01	1.989E 02	2.964E-03	2.912E-02
4.928E 01	5.413E 00	2.043E 02	2.822E-03	2.667E-02
5.069E 01	1.243E 01	2.167E 02	2.758E-03	2.910E-02
5.279E 01	1.553E 01	2.322E 02	2.681E-03	2.080E-02
5.329E 01	3.351E 00	2.356E 02	2.624E-03	2.158E-02
5.404E 01	4.640E 00	2.402E 02	2.624E-03	2.336E-02
5.480E 01	4.429E 00	2.447E 02	2.784E-03	2.362E-02
5.576E 01	5.511E 00	2.502E 02	2.884E-03	2.105E-02
5.622E 01	1.698E 00	2.519E 02	2.809E-03	1.950E-02
5.628E 01	2.605E-01	2.521E 02	3.037E-03	1.768E-02
5.642E 01	6.816E-01	2.528E 02	3.022E-03	1.765E-02
5.650E 01	4.016E-01	2.532E 02	3.146E-03	1.692E-02
5.678E 01	1.411E 00	2.546E 02	2.996E-03	1.742E-02
5.700E 01	1.107E 00	2.557E 02	2.988E-03	1.804E-02
5.773E 01	3.423E 00	2.592E 02	3.047E-03	1.925E-02
5.875E 01	4.734E 00	2.639E 02	3.143E-03	1.874E-02
6.076E 01	9.610E 00	2.735E 02	3.159E-03	1.885E-02
6.218E 01	6.938E 00	2.804E 02	3.145E-03	1.959E-02
6.464E 01	1.199E 01	2.924E 02	3.158E-03	1.761E-02
6.502E 01	1.727E 00	2.942E 02	3.142E-03	1.749E-02
6.506E 01	1.763E-01	2.943E 02	3.224E-03	1.759E-02
6.526E 01	8.922E-01	2.952E 02	3.216E-03	1.732E-02
6.692E 01	7.185E 00	3.024E 02	3.098E-03	1.320E-02
6.759E 01	2.529E 00	3.049E 02	3.061E-03	1.189E-02
6.836E 01	2.676E 00	3.076E 02	2.996E-03	9.644E-03
6.908E 01	2.285E 00	3.099E 02	2.977E-03	9.198E-03
6.969E 01	1.881E 00	3.118E 02	2.973E-03	9.025E-03
7.064E 01	2.730E 00	3.145E 02	2.931E-03	7.645E-03
7.107E 01	1.194E 00	3.157E 02	2.941E-03	8.095E-03
7.260E 01	4.697E 00	3.204E 02	2.995E-03	1.036E-02
7.275E 01	4.766E-01	3.209E 02	2.995E-03	1.042E-02
7.350E 01	2.351E 00	3.232E 02	2.996E-03	1.057E-02
7.350E 01	4.525E-03	3.232E 02	2.996E-03	1.057E-02
7.483E 01	1.475E 00	3.247E 02	3.007E-03	1.121E-02
7.768E 01	2.865E 00	3.276E 02	3.005E-03	1.159E-02
8.158E 01	3.101E 00	3.307E 02	2.994E-03	1.179E-02
8.439E 01	1.629E 00	3.323E 02	2.991E-03	1.211E-02
8.725E 01	6.942E-01	3.330E 02	3.005E-03	1.308E-02
8.725E 01	0.000	3.330E 02	3.005E-03	1.308E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-2384.	(LBF)
MEASURED THRUST	-5790.	(LBF)
CALCULATED SPECIFIC IMPULSE	-338.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-821.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.0563	
MEASURED THRUST COEFFICIENT	-.1368	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	73604.	(LBF)
NET THRUST	-2483.	(LBF)
SPECIFIC IMPULSE	-352.	(LBF-SEC/LBM)
THRUST COEFFICIENT	-.0586	

MOMENTUM AND FORCES

INLET FRICTION DRAG	98.5	(LBF)
INLET MOMENTUM CHANGE	******	(LBF)
COMBUSTOR FRICTION DRAG	196.6	(LBF)
COMBUSTOR STRUT DRAG	28.31	(LBF)
COMBUSTOR MOMENTUM CHANGE	1870.	(LBF)
NOZZLE FRICTION DRAG	38.84	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	9938.	(LBF)
NOZZLE PRESSURE INTEGRAL	1596.	(LBF)
EXTERNAL FRICTION DRAG	54.11	(LBF)
EXTERNAL PRESSURE INTEGRAL	-914.	(LBF)
TOTAL EXTERNAL DRAG	******	(LBF)
TOTAL STRUT DRAG	28.31	(LBF)
CAVITY FORCE	******	(LBF)
CALCULATED LOAD CELL FORCE	******	(LBF)
MEASURED LOAD CELL FORCE	-1425.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE -121.8,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2789	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.163	(IN)
NOZZLE SHROUD TRAILING EDGE	73.503	(IN)
NOZZLE PLUG TRAILING EDGE	87.255	(IN)
STRUT LEADING EDGE	56.419	(IN)
STRUT TRAILING EDGE	65.019	(IN)
COMBUSTOR EXIT	65.019	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8661	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2655	
DELTA PT2	0.0947	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4274	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2702	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8976	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9140	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9144	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8809	
ENTHALPY AT PO - SUPERSONIC	26.03	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	47.75	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0161
EQUIVALENCE RATIO	0.531
COMBUSTOR EFFICIENCY	0.480
TOTAL PRESSURE RATIO	0.2039
COMBUSTOR EFFECTIVENESS	0.5556

INJECTOR DISCHARGE COEFFICIENTS 0.7553,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.1897
NOZZLE COEFFICIENT - CT	1.1183
PROCESS EFFICIENCY	0.9067
KINETIC ENERGY EFFICIENCY	0.9422

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.264	
1C	44.300	
2A	48.739	0
2C	46.250	
3A	54.029	
3B	56.214	
4	44.764	

Reading 94

t = 215.14 sec.

Test cell pressure was high which resulted in increased pressures in the AIM nozzle.

READING = 0094 BLOCK = 123 TIME = 215.142 MACH 5.2 PT = 298.500 TT = 2918.9

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	298.500	2919	646.2(772)	1.2961	28.867	2553											
0.000	0.383	507	-7.1(122)	1.3989	28.866	1106	5.171	5717	1.883	0.08068	17.894	0.8659	3265	7.169	182.5		
SPIKE TIP NS		2	0 6														
0.600	14.725	2919	646.2(772)	1.2960	28.866	2553											
0.600	13.543	2863	629.5(756)	1.2978	28.866	2530	0.361	913	2.090	0.08068	17.894	0.8659	3511	1.145	196.2		
WIND TUNNEL		3	0 0														
0.000	298.500	2919	646.2(772)	1.2961	28.867	2553											
0.000	0.437	527	-2.4(127)	1.3987	28.866	1126	5.058	5697	1.883	0.08823	19.566	0.8659	3561	7.811	182.0		
SPIKE TIP NS		4	0 0														
0.600	14.725	2919	646.2(772)	1.2960	28.866	2553											
0.600	13.278	2851	625.6(752)	1.2982	28.866	2525	0.402	1014	2.090	0.08823	19.566	0.8659	3561	1.390	182.0		
INLET THROAT		5	0 3														
40.400	127.982	2834	620.6(747)	1.2988	28.866	2518											
40.400	13.132	1631	277.8(407)	1.3418	28.866	1942	2.133	4142	1.932	0.62297	19.566	0.1121	2896	43.848	148.0		
INLET UPNRSK		6	0 1														
40.400	127.982	2834	620.6(747)	1.2988	28.866	2518											
40.400	13.001	1627	276.7(406)	1.3420	28.866	1939	2.139	4149	1.932	0.61928	19.566	0.1234	2934	39.926	149.9		
INLET DNNRSK		7	0 4														
40.400	80.926	2834	620.6(747)	1.2988	28.866	2518											
40.400	67.023	2713	584.6(712)	1.3026	28.866	2467	0.544	1349	1.964	0.61928	19.566	0.1234	2934	12.915	149.9		
COMBUSTOR	0	8	1 4														
40.410	128.632	2834	620.6(747)	1.2988	28.866	2518											
40.410	15.280	1693	294.5(424)	1.3388	28.866	1976	2.045	4039	1.932	0.68112	19.566	0.1122	2895	42.757	148.0		
COMBUSTOR	0	9	2 3														
41.276	112.315	2821	616.8(744)	1.2992	28.866	2512											
41.276	17.035	1791	321.5(451)	1.3345	28.866	2029	1.894	3844	1.940	0.68286	19.566	0.1119	2826	40.795	144.4		
COMBUSTOR	0	10	3 3														
41.341	111.175	2820	616.5(743)	1.2992	28.866	2512											
41.341	17.196	1800	323.7(453)	1.3341	28.866	2033	1.882	3828	1.940	0.68326	19.566	0.1118	2820	40.643	144.1		
COMBUSTOR	0	11	4 2														
41.500	108.516	2818	618.8(743)	1.2993	28.866	2511											
41.500	17.607	1820	329.2(458)	1.3333	28.866	2044	1.853	3786	1.942	0.68443	19.566	0.1116	2806	40.274	143.4		
COMBUSTOR	0	12	5 5														
42.460	98.634	2801	610.9(738)	1.2998	28.866	2504											
42.460	18.728	1880	346.0(475)	1.3310	28.866	2076	1.754	3640	1.947	0.67730	19.566	0.1128	2755	38.317	140.8		
COMBUSTOR	0	13	6 4														
44.061	91.057	2772	602.2(729)	1.3007	28.866	2492											
44.061	18.750	1897	350.6(480)	1.3303	28.866	2085	1.702	3547	1.949	0.65495	19.566	0.1166	2717	36.107	138.9		
COMBUSTOR	0	14	7 3														
44.310	89.971	2768	600.8(728)	1.3009	28.866	2490											
44.310	18.894	1903	352.3(481)	1.3301	28.866	2088	1.689	3526	1.949	0.65402	19.566	0.1168	2710	35.841	138.5		
COMBUSTOR	0	15	8 3														
44.776	87.673	2760	598.6(726)	1.3011	28.866	2487											
44.776	19.211	1918	356.4(486)	1.3296	28.866	2096	1.661	3482	1.950	0.65151	19.566	0.1173	2694	35.250	137.7		
COMBUSTOR	0	16	9 3														
44.800	87.542	2760	598.5(726)	1.3011	28.866	2487											
44.800	19.215	1918	356.5(486)	1.3295	28.866	2096	1.660	3480	1.950	0.65111	19.566	0.1173	2694	35.210	137.7		
COMBUSTOR	0	17	10 3														
46.260	82.424	2743	593.5(721)	1.3016	28.866	2480											
46.260	17.975	1902	352.2(481)	1.3301	28.866	2088	1.664	3475	1.953	0.61328	19.566	0.1246	2687	33.116	137.3		
COMBUSTOR	0	18	11 3														
47.301	81.918	2733	590.7(718)	1.3019	28.866	2476											
47.301	15.583	1832	332.7(462)	1.3328	28.866	2051	1.752	3593	1.952	0.57082	19.566	0.1338	2719	31.870	139.0		

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               P      T     H           GAMMA  MOLWT  SONV  MACH   VEL    S      W/A        W     A/AC    MOMTM    Q     IVAC  PHI  FTAC
COMBUSTOR        0   19   12   3
47.310      81.937 2733   590.6( 718) 1.3019 28.866 2476
47.310      15.577 1832   332.6( 462) 1.3329 28.866 2051 1.752 3593 1.952 0.57078 19.566 0.1338   2719 31.872 139.0
COMBUSTOR        0   20   13   4
48.110      82.613 2726   588.5( 716) 1.3022 28.866 2473
48.110      13.459 1757   312.1( 441) 1.3359 28.866 2011 1.850 3719 1.951 0.53201 19.566 0.1436   2756 30.745 140.9
COMBUSTOR        0   21   14  21
48.741      52.037 2652   612.7( 823) 1.3093 24.176 2672
48.741      11.474 1832   336.6( 549) 1.3384 24.176 2245 1.655 3716 2.281 0.49980 19.868 0.1552   2751 28.865 138.5 0.52 0.07
COMBUSTOR        0   22   15  21
48.751      57.695 2504   612.7( 775) 1.3160 24.038 2611
48.751      11.439 1674   336.3( 500) 1.3466 24.037 2159 1.722 3718 2.257 0.49915 19.868 0.1554   2751 28.844 138.5 0.52 0.01
COMBUSTOR        0   23   16  21
49.281      56.123 2478   611.3( 766) 1.3172 24.017 2599
49.281       9.575 1592   317.5( 474) 1.3507 24.017 2110 1.817 3834 2.256 0.46683 19.868 0.1662   2775 27.815 139.7 0.52 0.00
COMBUSTOR        0   24   17   0
50.691      56.678 2468   608.0( 763) 1.3175 24.017 2595
50.691      11.625 1662   340.1( 496) 1.3474 24.017 2153 1.700 3661 2.253 0.39786 19.868 0.1950   2841 22.633 143.0 0.52 0.00
COMBUSTOR        0   25   18   2
52.791      52.138 2495   599.8( 777) 1.3160 23.894 2614
52.791       8.750 1597   300.2( 478) 1.3500 23.894 2118 1.828 3872 2.277 0.32796 19.981 0.2379   2938 19.734 147.0 0.53 0.03
COMBUSTOR        0   26   19   5
53.291      42.256 2802   598.7( 878) 1.3019 24.186 2738
53.291      11.450 2049   340.2( 622) 1.3280 24.186 2365 1.521 3596 2.325 0.31455 19.981 0.2488   2961 17.580 148.2 0.53 0.16
COMBUSTOR        0   27   20   5
54.041      36.560 3162   596.9( 998) 1.2846 24.545 2868
54.041      14.952 2579   389.7( 795) 1.3047 24.547 2611 1.233 3220 2.365 0.29651 19.981 0.2631   3007 14.839 150.5 0.53 0.31
COMBUSTOR        0   28   21   4
54.801      34.375 3418   595.0(1084) 1.2712 24.818 2950
54.801      18.500 2986   436.3( 932) 1.2872 24.819 2775 1.016 2818 2.387 0.28039 19.981 0.2782   3068 12.278 153.6 0.53 0.42
COMBUSTOR        0   29   22   4
55.760      33.161 3627   592.3(1155) 1.2591 25.045 3011
55.760      19.033 3227   441.5(1012) 1.2751 25.054 2857 0.961 2747 2.401 0.26269 19.981 0.2970   3154 11.214 157.8 0.53 0.52
COMBUSTOR        0   30   23   5
56.226      30.008 4432   591.0(1431) 1.1997 25.977 3190
56.226      19.292 4119   446.7(1316) 1.2157 26.045 3092 0.869 2687 2.439 0.21210 19.981 0.3678   3486  8.856 174.5 0.53 0.93
COMBUSTOR        0   31   24   3
56.281      29.897 4472   590.8(1445) 1.1963 26.027 3197
56.281      18.811 4147   438.6(1325) 1.2128 26.103 3095 0.892 2760 2.440 0.21146 19.981 0.3689   3491  9.069 174.7 0.53 0.96
COMBUSTOR        0   32   25   3
56.421      29.802 4501   590.4(1455) 1.1938 26.063 3202
56.421      18.850 4181   439.1(1336) 1.2099 26.143 3102 0.887 2752 2.441 0.20990 19.981 0.3717   3503  8.977 175.3 0.53 0.98
COMBUSTOR        0   33   26  21
56.501      30.152 4537   590.2(1467) 1.1909 26.108 3208
56.501      19.444 4233   444.0(1355) 1.2060 26.191 3113 0.869 2704 2.439 0.21225 19.981 0.3675   3510  8.921 175.7 0.53 1.00
COMBUSTOR        0   34   27 200
56.781      30.420 4536   589.3(1467) 1.1911 26.109 3208
56.781      19.600 4231   442.9(1354) 1.2062 26.192 3112 0.870 2707 2.439 0.21163 19.981 0.3686   3531  8.901 176.7 0.53 1.00
COMBUSTOR        0   35   28 200
57.007      30.619 4535   588.6(1466) 1.1913 26.110 3207
57.007      19.981 4238   446.3(1357) 1.2059 26.191 3115 0.857 2668 2.438 0.21119 19.981 0.3694   3547  8.757 177.5 0.53 1.00
COMBUSTOR        0   36   29 200
57.731      30.837 4531   586.2(1465) 1.1917 26.112 3206
57.731      21.200 4270   460.9(1368) 1.2044 26.184 3125 0.801 2504 2.437 0.20788 19.981 0.3753   3593  8.089 179.8 0.53 1.00
COMBUSTOR        0   37   30 200
58.751      31.175 4525   582.8(1463) 1.1922 26.116 3205
58.751      21.975 4282   465.8(1372) 1.2041 26.183 3129 0.773 2419 2.435 0.20655 19.981 0.3777   3628  7.766 181.6 0.53 1.00
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READING = 0094 BLOCK = 123 TIME = 215.142 MACH 5.2 PT = 298.500 TT = 2918.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 200														
60.761	32.003	4514	576.5(1458)	1.1933	26.122	3202											
60.761	20.812	4214	433.9(1347)	1.2081	26.199	3108	0.859	2671	2.432	0.21374	19.981	0.3650	3605	8.873	180.4	0.53	1.00
COMBUSTOR	0	39	32 200														
62.181	32.700	4507	572.2(1456)	1.1940	26.127	3200											
62.181	19.237	4135	398.2(1319)	1.2127	26.216	3084	0.957	2951	2.429	0.21954	19.981	0.3553	3584	10.068	179.3	0.53	1.00
COMBUSTOR	0	40	33 200														
64.645	30.681	4490	564.7(1449)	1.1943	26.129	3194											
64.645	14.467	3963	323.6(1256)	1.2216	26.242	3029	1.147	3473	2.432	0.20810	19.981	0.3749	3546	11.231	177.5	0.53	1.00
COMBUSTOR	0	41	34 200														
65.021	28.412	4484	563.8(1447)	1.1936	26.126	3191											
65.021	13.620	3971	327.6(1259)	1.2205	26.240	3030	1.134	3435	2.438	0.19346	19.981	0.4032	3540	10.329	177.2	0.53	1.00
COMBUSTOR	REGEN	42	35 3														
65.021	28.412	4604	628.9(1492)	1.1857	26.071	3226											
65.021	12.646	4048	362.7(1287)	1.2143	26.222	3053	1.195	3649	2.452	0.19346	19.981	0.4032	3573	10.972	178.8	0.53	1.00
NOZZLE	AE	43	36 4														
87.257	28.412	4484	563.8(1426)	1.1936	26.126	3191											
87.257	0.773	2183	-328.6(637)	1.2990	26.304	2315	2.886	6681	2.438	0.04027	19.981	1.9371	4533	4.181	226.8	0.53	1.00
NOZZLE	PO	44	37 4														
87.257	28.412	4484	563.8(1426)	1.1936	26.126	3191											
87.257	0.437	1910	-416.8(549)	1.3103	26.304	2175	3.220	7004	2.438	0.02725	19.981	2.8633	4670	2.965	233.7	0.53	1.00
NOZZLE	AE REGEN	45	38 4														
87.257	28.412	4604	628.9(1492)	1.1857	26.071	3226											
87.257	0.802	2300	-290.0(676)	1.2945	26.304	2372	2.859	6781	2.452	0.04027	19.981	1.9371	4609	4.244	230.7	0.53	1.00
NOZZLE	PO REGEN	46	39 4														
87.257	28.412	4604	628.9(1492)	1.1857	26.071	3226											
87.257	0.437	1998	-388.7(577)	1.3065	26.304	2221	3.213	7136	2.452	0.02654	19.981	2.9393	4760	2.943	238.2	0.53	1.00
FICTIVE	COMBUSTR	66	59 0														
65.021	127.982	4541	563.5(1467)	1.2084	26.190	3227											
65.021	0.437	1317	-599.6(366)	1.3425	26.304	1828	4.174	7629	2.324	0.04306	19.981	1.8118	4940	5.105	247.2	0.53	1.00
FICTIVE	NOZZLE	67	60 0														
87.257	198.090	4513	544.8(1457)	1.2138	26.213	3223											
87.257	0.326	1074	-670.3(296)	1.3580	26.304	1660	4.697	7798	2.286	0.04027	19.981	1.9371	5004	4.880	250.4	0.53	1.00

READING = 0094 BLOCK = 123 TIME = 215.142 MACH 5.2 PT = 290.500 TT = 2918.9

XABS	P-IB	P-OB	PDA	GOX	Q-IB	Q-OH	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.110E 00	0.000	-3.607E-01	0.000	0.000	0.000	2.470E-02	2.543E 00	3.719E-03	0.000	0.000
1.836E 01	1.110E 00	0.000	-3.685E 01	0.000	0.000	0.000	1.634E 02	2.543E 00	3.719E-03	0.000	0.000
3.070E 01	2.010E 00	0.000	-1.633E 02	0.000	0.000	0.000	5.053E 02	4.604E 00	6.734E-03	0.000	0.000
3.508E 01	3.068E 00	0.000	-3.279E 02	0.000	0.000	0.000	6.804E 02	7.028E 00	1.028E-02	0.000	0.000
3.516E 01	3.071E 00	4.327E 00	-3.750E 02	0.000	0.000	0.000	6.839E 02	7.034E 00	1.029E-02	9.912E 00	1.450E-02
3.516E 01	3.071E 00	4.313E 00	-3.751E 02	0.000	0.000	0.000	6.842E 02	7.035E 00	1.029E-02	9.880E 00	1.445E-02
3.555E 01	3.085E 00	3.438E 00	-3.808E 02	0.000	0.000	0.000	7.228E 02	7.066E 00	1.034E-02	7.876E 00	1.152E-02
3.583E 01	3.088E 00	2.800E 00	-3.883E 02	-2.146E 02	-2.146E 02	0.000	7.513E 02	7.073E 00	1.034E-02	6.414E 00	9.380E-03
3.606E 01	3.090E 00	3.787E 00	-3.945E 02	-2.174E 02	-2.174E 02	0.000	7.748E 02	7.078E 00	1.035E-02	8.673E 00	1.269E-02
3.648E 01	3.471E 00	5.595E 00	-4.033E 02	-2.228E 02	-2.228E 02	0.000	8.185E 02	7.950E 00	1.163E-02	1.282E 01	1.874E-02
3.701E 01	3.307E 00	7.878E 00	-4.135E 02	-2.748E 02	-2.298E 02	-4.497E 01	8.745E 02	7.576E 00	1.108E-02	1.804E 01	2.639E-02
3.729E 01	4.227E 00	9.087E 00	-4.191E 02	-2.919E 02	-2.337E 02	-5.823E 01	9.046E 02	9.682E 00	1.416E-02	2.082E 01	3.044E-02
3.803E 01	6.645E 00	1.090E 01	-4.588E 02	-3.370E 02	-2.445E 02	-9.253E 01	9.854E 02	1.522E 01	2.226E-02	2.496E 01	3.651E-02
3.831E 01	8.675E 00	1.159E 01	-4.775E 02	-3.545E 02	-2.489E 02	-1.055E 02	1.017E 03	1.987E 01	2.906E-02	2.654E 01	3.882E-02
3.875E 01	1.185E 01	1.176E 01	-5.135E 02	-3.827E 02	-2.570E 02	-1.257E 02	1.066E 03	2.714E 01	3.969E-02	2.694E 01	3.941E-02
3.878E 01	1.207E 01	1.177E 01	-5.160E 02	-3.847E 02	-2.576E 02	-1.272E 02	1.070E 03	2.765E 01	4.044E-02	2.697E 01	3.945E-02
3.901E 01	1.372E 01	1.266E 01	-5.325E 02	-4.000E 02	-2.623E 02	-1.377E 02	1.096E 03	3.144E 01	4.598E-02	2.899E 01	4.240E-02
3.929E 01	1.337E 01	1.374E 01	-5.487E 02	-4.192E 02	-2.687E 02	-1.505E 02	1.128E 03	3.063E 01	4.480E-02	3.147E 01	4.602E-02
3.950E 01	1.311E 01	1.136E 01	-5.567E 02	-4.339E 02	-2.738E 02	-1.601E 02	1.153E 03	3.004E 01	4.393E-02	2.603E 01	3.807E-02
3.978E 01	1.413E 01	8.175E 00	-5.690E 02	-4.540E 02	-2.813E 02	-1.727E 02	1.185E 03	3.236E 01	4.733E-02	1.873E 01	2.739E-02
4.000E 01	1.492E 01	8.199E 00	-5.811E 02	-4.700E 02	-2.876E 02	-1.824E 02	1.211E 03	3.417E 01	4.998E-02	1.878E 01	2.747E-02
4.040E 01	1.718E 01	8.242E 00	-6.037E 02	-4.999E 02	-3.000E 02	-1.999E 02	1.258E 03	3.935E 01	5.756E-02	1.888E 01	2.761E-02
4.041E 01	1.724E 01	8.243E 00	-6.042E 02	-5.006E 02	-3.003E 02	-2.003E 02	1.259E 03	3.948E 01	5.775E-02	1.888E 01	2.761E-02
4.128E 01	2.213E 01	8.337E 00	-6.625E 02	-5.742E 02	-3.304E 02	-2.438E 02	1.361E 03	5.070E 01	7.415E-02	1.910E 01	2.793E-02
4.134E 01	2.250E 01	8.344E 00	-6.674E 02	-5.803E 02	-3.328E 02	-2.475E 02	1.369E 03	5.154E 01	7.538E-02	1.911E 01	2.795E-02
4.150E 01	2.340E 01	8.635E 00	-6.795E 02	-5.958E 02	-3.390E 02	-2.565E 02	1.388E 03	5.360E 01	7.839E-02	1.978E 01	2.893E-02
4.246E 01	1.432E 01	1.040E 01	-7.183E 02	-6.915E 02	-3.782E 02	-3.133E 02	1.503E 03	3.281E 01	4.799E-02	2.381E 01	3.483E-02
4.406E 01	1.871E 01	1.333E 01	-7.357E 02	-8.621E 02	-4.444E 02	-4.176E 02	1.697E 03	4.286E 01	6.269E-02	3.054E 01	4.466E-02
4.431E 01	1.939E 01	1.358E 01	-7.404E 02	-8.881E 02	-4.543E 02	-4.338E 02	1.727E 03	4.442E 01	6.497E-02	3.110E 01	4.549E-02
4.478E 01	2.067E 01	1.404E 01	-7.502E 02	-9.307E 02	-4.726E 02	-4.581E 02	1.784E 03	4.735E 01	6.925E-02	3.216E 01	4.703E-02
4.480E 01	2.074E 01	1.406E 01	-7.506E 02	-9.327E 02	-4.735E 02	-4.591E 02	1.787E 03	4.750E 01	6.947E-02	3.221E 01	4.711E-02
4.626E 01	1.572E 01	1.551E 01	-7.403E 02	-1.032E 03	-5.280E 02	-5.038E 02	1.966E 03	3.601E 01	5.267E-02	3.552E 01	5.195E-02
4.730E 01	1.214E 01	1.654E 01	-6.961E 02	-1.087E 03	-5.644E 02	-5.227E 02	2.095E 03	2.782E 01	4.068E-02	3.788E 01	5.540E-02
4.731E 01	1.211E 01	1.651E 01	-6.959E 02	-1.088E 03	-5.647E 02	-5.228E 02	2.096E 03	2.774E 01	4.058E-02	3.781E 01	5.530E-02
4.811E 01	7.800E 00	1.369E 01	-6.500E 02	-1.129E 03	-5.914E 02	-5.374E 02	2.196E 03	1.787E 01	2.613E-02	3.136E 01	4.587E-02
4.874E 01	1.147E 01	1.147E 01	-6.113E 02	-1.161E 03	-6.115E 02	-5.498E 02	2.275E 03	2.628E 01	3.844E-02	2.628E 01	3.844E-02
4.875E 01	1.144E 01	1.144E 01	-6.107E 02	-1.161E 03	-6.118E 02	-5.492E 02	2.276E 03	2.620E 01	3.832E-02	2.620E 01	3.832E-02
4.928E 01	9.575E 00	9.578E 00	-5.817E 02	-1.187E 03	-6.282E 02	-5.589E 02	2.343E 03	2.193E 01	3.208E-02	2.193E 01	3.208E-02
5.069E 01	1.162E 01	1.162E 01	-5.033E 02	-1.254E 03	-6.693E 02	-5.850E 02	2.520E 03	2.663E 01	3.894E-02	2.663E 01	3.894E-02
5.279E 01	8.750E 00	8.750E 00	-3.911E 02	-1.348E 03	-7.240E 02	-6.236E 02	2.787E 03	2.004E 01	2.931E-02	2.004E 01	2.931E-02
5.329E 01	1.145E 01	1.145E 01	-3.649E 02	-1.370E 03	-7.358E 02	-6.338E 02	2.850E 03	2.623E 01	3.836E-02	2.623E 01	3.836E-02
5.404E 01	1.495E 01	1.498E 01	-3.138E 02	-1.405E 03	-7.527E 02	-6.524E 02	2.946E 03	3.425E 01	5.009E-02	3.425E 01	5.009E-02
5.480E 01	1.850E 01	1.850E 01	-2.489E 02	-1.444E 03	-7.689E 02	-6.751E 02	3.044E 03	4.238E 01	6.198E-02	4.238E 01	6.198E-02
5.576E 01	1.903E 01	1.903E 01	-1.587E 02	-1.497E 03	-7.878E 02	-7.093E 02	3.167E 03	4.360E 01	6.376E-02	4.360E 01	6.376E-02
5.623E 01	1.929E 01	1.929E 01	1.750E 02	-1.524E 03	-7.956E 02	-7.282E 02	3.209E 03	4.419E 01	6.463E-02	4.419E 01	6.463E-02
5.628E 01	1.830E 01	1.932E 01	1.805E 02	-1.527E 03	-7.964E 02	-7.305E 02	3.217E 03	4.192E 01	6.131E-02	4.426E 01	6.473E-02
5.642E 01	1.830E 01	1.940E 01	1.931E 02	-1.536E 03	-7.983E 02	-7.366E 02	3.234E 03	4.192E 01	6.131E-02	4.444E 01	6.499E-02
5.650E 01	1.944E 01	1.944E 01	2.009E 02	-1.540E 03	-7.994E 02	-7.402E 02	3.245E 03	4.454E 01	6.514E-02	4.454E 01	6.514E-02
5.678E 01	1.960E 01	1.960E 01	2.264E 02	-1.557E 03	-8.033E 02	-7.535E 02	3.280E 03	4.490E 01	6.566E-02	4.490E 01	6.566E-02
5.701E 01	1.998E 01	1.998E 01	2.457E 02	-1.571E 03	-8.062E 02	-7.651E 02	3.309E 03	4.577E 01	6.694E-02	4.577E 01	6.694E-02
5.773E 01	2.120E 01	2.120E 01	3.015E 02	-1.620E 03	-8.151E 02	-8.050E 02	3.402E 03	4.856E 01	7.102E-02	4.856E 01	7.102E-02
5.875E 01	2.197E 01	2.197E 01	3.515E 02	-1.687E 03	-8.259E 02	-8.614E 02	3.532E 03	5.034E 01	7.362E-02	5.034E 01	7.362E-02
6.076E 01	2.081E 01	2.081E 01	3.565E 02	-1.814E 03	-8.434E 02	-9.704E 02	3.790E 03	4.767E 01	6.972E-02	4.767E 01	6.972E-02
6.218E 01	1.924E 01	1.924E 01	3.565E 02	-1.898E 03	-8.563E 02	-1.042E 03	3.972E 03	4.406E 01	6.445E-02	4.406E 01	6.445E-02
6.464E 01	1.447E 01	1.447E 01	3.565E 02	-2.050E 03	-8.879E 02	-1.162E 03	4.289E 03	3.314E 01	4.847E-02	3.314E 01	4.847E-02
6.502E 01	1.350E 01	1.374E 01	3.565E 02	-2.074E 03	-8.938E 02	-1.180E 03	4.337E 03	3.092E 01	4.523E-02	3.147E 01	4.603E-02

READING = 0094 BLOCK = 123 TIME = 215.142 MACH 5.2 PT = 298.500 TT = 2918.9

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.506E 01	1.350E 01	1.366E 01	3.565E 02	-2.077E 03	-8.944E 02	-1.182E 03	4.342E 03	3.092E 01	4.523E-02	3.129E 01	4.577E-02
6.526E 01	1.271E 01	1.327E 01	3.565E 02	-2.089E 03	-8.976E 02	-1.191E 03	4.368E 03	2.912E 01	4.259E-02	3.041E 01	4.447E-02
6.692E 01	6.175E 00	5.925E 00	4.626E 02	-2.166E 03	-9.197E 02	-1.247E 03	4.584E 03	1.414E 01	2.069E-02	1.357E 01	1.985E-02
6.759E 01	4.521E 00	5.467E 00	5.744E 02	-2.189E 03	-9.267E 02	-1.262E 03	4.665E 03	1.036E 01	1.515E-02	1.252E 01	1.832E-02
6.836E 01	2.620E 00	4.301E 00	6.894E 02	-2.213E 03	-9.337E 02	-1.280E 03	4.760E 03	6.001E 00	8.777E-03	9.851E 00	1.441E-02
6.908E 01	2.609E 00	3.210E 00	7.707E 02	-2.237E 03	-9.395E 02	-1.298E 03	4.848E 03	5.976E 00	8.741E-03	7.353E 00	1.075E-02
6.969E 01	2.600E 00	2.475E 00	8.300E 02	-2.256E 03	-9.443E 02	-1.312E 03	4.922E 03	5.955E 00	8.710E-03	5.669E 00	8.291E-03
7.064E 01	2.610E 00	1.330E 00	9.044E 02	-2.277E 03	-9.513E 02	-1.325E 03	5.036E 03	5.979E 00	8.745E-03	3.046E 00	4.456E-03
7.107E 01	2.615E 00	1.762E 00	9.352E 02	-2.284E 03	-9.544E 02	-1.330E 03	5.088E 03	5.990E 00	8.760E-03	4.036E 00	5.904E-03
7.260E 01	3.152E 00	3.300E 00	1.067E 03	-2.318E 03	-9.643E 02	-1.354E 03	5.273E 03	7.221E 00	1.056E-02	7.559E 00	1.106E-02
7.275E 01	3.205E 00	3.434E 00	1.081E 03	-2.322E 03	-9.652E 02	-1.357E 03	5.290E 03	7.341E 00	1.074E-02	7.866E 00	1.150E-02
7.350E 01	3.254E 00	4.105E 00	1.202E 03	-2.345E 03	-9.694E 02	-1.375E 03	5.374E 03	7.453E 00	1.090E-02	9.403E 00	1.375E-02
7.350E 01	3.254E 00	4.109E 00	1.210E 03	-2.345E 03	-9.694E 02	-1.375E 03	5.375E 03	7.453E 00	1.090E-02	9.411E 00	1.376E-02
7.483E 01	3.340E 00	0.000	1.280E 03	-2.390E 03	-9.760E 02	-1.414E 03	5.427E 03	7.650E 00	1.119E-02	0.000	0.000
7.768E 01	3.635E 00	0.000	1.419E 03	-2.402E 03	-9.878E 02	-1.414E 03	5.525E 03	8.326E 00	1.218E-02	0.000	0.000
8.158E 01	4.730E 00	0.000	1.898E 03	-2.414E 03	-1.000E 03	-1.414E 03	5.630E 03	1.083E 01	1.585E-02	0.000	0.000
8.439E 01	5.735E 00	0.000	1.714E 03	-2.426E 03	-1.012E 03	-1.414E 03	5.684E 03	1.314E 01	1.921E-02	0.000	0.000
8.725E 01	6.475E 00	0.000	1.862E 03	-2.447E 03	-1.034E 03	-1.414E 03	5.707E 03	1.483E 01	2.169E-02	0.000	0.000
8.726E 01	6.477E 00	0.000	1.862E 03	-2.447E 03	-1.034E 03	-1.414E 03	5.707E 03	1.484E 01	2.170E-02	0.000	0.000

READING = 0094 BLOCK = 123 TIME = 215.142 MACH 5.2 PT = 296.500 TT = 2918.9

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.858E 01	9.858E 01	2.568E-03	3.429E-02
4.041E 01	1.318E-01	9.871E 01	2.585E-03	3.795E-02
4.128E 01	1.126E 01	1.100E 02	2.677E-03	3.977E-02
4.134E 01	8.443E-01	1.108E 02	2.684E-03	3.993E-02
4.150E 01	2.064E 00	1.129E 02	2.702E-03	4.033E-02
4.246E 01	1.233E 01	1.252E 02	2.759E-03	4.095E-02
4.406E 01	1.999E 01	1.452E 02	2.787E-03	4.007E-02
4.431E 01	3.042E 00	1.482E 02	2.797E-03	4.017E-02
4.478E 01	5.677E 00	1.539E 02	2.819E-03	4.036E-02
4.480E 01	2.925E-01	1.542E 02	2.820E-03	4.034E-02
4.626E 01	1.732E 01	1.715E 02	2.830E-03	3.808E-02
4.730E 01	1.176E 01	1.833E 02	2.781E-03	3.461E-02
4.731E 01	1.035E-01	1.834E 02	2.780E-03	3.460E-02
4.811E 01	8.590E 00	1.920E 02	2.724E-03	3.140E-02
4.874E 01	7.346E 00	1.993E 02	3.520E-03	2.417E-02
4.875E 01	1.171E-01	1.994E 02	2.957E-03	2.903E-02
4.928E 01	5.436E 00	2.049E 02	2.815E-03	2.651E-02
5.069E 01	1.247E 01	2.173E 02	2.753E-03	2.922E-02
5.279E 01	1.534E 01	2.327E 02	2.688E-03	2.353E-02
5.329E 01	3.220E 00	2.359E 02	2.729E-03	2.720E-02
5.404E 01	4.430E 00	2.403E 02	2.976E-03	2.826E-02
5.480E 01	4.077E 00	2.444E 02	3.200E-03	2.766E-02
5.576E 01	4.698E 00	2.491E 02	3.285E-03	2.627E-02
5.623E 01	1.403E 00	2.505E 02	3.270E-03	2.433E-02
5.628E 01	2.143E-01	2.507E 02	3.517E-03	2.177E-02
5.642E 01	5.649E-01	2.513E 02	3.528E-03	2.162E-02
5.650E 01	3.239E-01	2.516E 02	3.545E-03	2.166E-02
5.678E 01	1.128E 00	2.527E 02	3.533E-03	2.178E-02
5.701E 01	8.991E-01	2.536E 02	3.530E-03	2.184E-02
5.773E 01	2.758E 00	2.564E 02	3.539E-03	2.165E-02
5.875E 01	3.666E 00	2.601E 02	3.537E-03	2.161E-02
6.076E 01	7.527E 00	2.676E 02	3.479E-03	2.255E-02
6.218E 01	5.959E 00	2.736E 02	3.428E-03	2.306E-02
6.464E 01	1.148E 01	2.850E 02	3.389E-03	2.098E-02
6.502E 01	1.773E 00	2.868E 02	3.431E-03	1.978E-02
6.506E 01	1.871E-01	2.870E 02	3.502E-03	2.018E-02
6.526E 01	9.687E-01	2.880E 02	3.491E-03	1.991E-02
6.692E 01	8.012E 00	2.960E 02	3.333E-03	1.365E-02
6.759E 01	2.867E 00	2.988E 02	3.298E-03	1.218E-02
6.836E 01	2.990E 00	3.018E 02	3.238E-03	9.506E-03
6.908E 01	2.461E 00	3.043E 02	3.202E-03	8.424E-03
6.969E 01	1.920E 00	3.062E 02	3.180E-03	7.649E-03
7.064E 01	2.684E 00	3.089E 02	3.139E-03	6.374E-03
7.107E 01	1.172E 00	3.101E 02	3.152E-03	6.869E-03
7.260E 01	4.712E 00	3.148E 02	3.200E-03	8.991E-03
7.278E 01	4.864E-01	3.153E 02	3.204E-03	9.166E-03
7.350E 01	2.456E 00	3.177E 02	3.216E-03	9.814E-03
7.350E 01	4.814E-03	3.177E 02	3.216E-03	9.818E-03
7.483E 01	1.507E 00	3.192E 02	3.193E-03	9.169E-03
7.768E 01	2.834E 00	3.221E 02	3.191E-03	9.662E-03
8.158E 01	3.245E 00	3.253E 02	3.213E-03	1.142E-02
8.439E 01	1.831E 00	3.271E 02	3.232E-03	1.283E-02
8.725E 01	7.978E-01	3.279E 02	3.239E-03	1.374E-02
8.726E 01	0.000	3.279E 02	3.239E-03	1.374E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1406.	(LBF)
MEASURED THRUST	1289.	(LBF)
CALCULATED SPECIFIC IMPULSE	4428.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	4059.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.7027	
MEASURED THRUST COEFFICIENT	0.6442	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	5089.	(LBF)
NET THRUST	1490.	(LBF)
SPECIFIC IMPULSE	4694.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.7449	

MOMENTUM AND FORCES

INLET FRICTION DRAG	98.6	(LBF)
INLET MOMENTUM CHANGE	-702.3	(LBF)
COMBUSTOR FRICTION DRAG	188.2	(LBF)
COMBUSTOR STRUT DRAG	90.98	(LBF)
COMBUSTOR MOMENTUM CHANGE	644.	(LBF)
NOZZLE FRICTION DRAG	41.14	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1464.	(LBF)
NOZZLE PRESSURE INTEGRAL	1505.	(LBF)
EXTERNAL FRICTION DRAG	57.96	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1007.	(LBF)
TOTAL EXTERNAL DRAG	-1065.	(LBF)
TOTAL STRUT DRAG	90.98	(LBF)
CAVITY FORCE	-1472.	(LBF)
CALCULATED LOAD CELL FORCE	-1131.	(LBF)
MEASURED LOAD CELL FORCE	-1248.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE -122.2,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2809	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.165	(IN)
NOZZLE SHROUD TRAILING EDGE	73.505	(IN)
NOZZLE PLUG TRAILING EDGE	87.257	(IN)
STRUT LEADING EDGE	56.421	(IN)
STRUT TRAILING EDGE	65.021	(IN)
COMBUSTOR EXIT	65.021	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8659	
ADDITIVE DRAG COEFFICIENT	0.8110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2665	
DELTA PT2	0.0946	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4288	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2711	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8970	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9137	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9161	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8825	
ENTHALPY AT P0 - SUPERSONIC	26.44	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	48.20	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0161
EQUIVALENCE RATIO	0.532
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.2820
COMBUSTOR EFFECTIVENESS	0.8667

INJECTOR DISCHARGE COEFFICIENTS 0.7560,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.1040
NOZZLE COEFFICIENT - CT	1.0253
PROCESS EFFICIENCY	1.2710
KINETIC ENERGY EFFICIENCY	1.1900

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.266	
1C	44.300	
2A	48.741	D
2C	46.250	
3A	54.031	
3B	56.216	
4	44.766	

Reading 94

t = 218.74 sec.

Test cell pressure was high which resulted in increased pressures in the AIM nozzle.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	298.000	2936	651.2(777)	1.2956	28.867	2559											
0.000	0.382	511	-6.3(123)	1.3989	28.866	1109	5.171	5736	1.885	0.08011	17.766	0.8659	3252	7.140	183.0		
SPIKE TIP NS		2	0 6														
0.600	14.667	2935	651.2(777)	1.2955	28.866	2559											
0.600	13.513	2880	634.5(761)	1.2972	28.866	2537	0.360	914	2.092	0.08011	17.766	0.8659	3502	1.136	197.1		
WIND TUNNEL		3	0 0														
0.000	298.000	2936	651.2(777)	1.2956	28.867	2559											
0.000	0.436	530	-1.5(128)	1.3987	28.866	1130	5.056	5715	1.885	0.08772	19.454	0.8659	3552	7.791	182.6		
SPIKE TIP NS		4	0 0														
0.600	14.687	2935	651.2(777)	1.2955	28.866	2559											
0.600	13.246	2867	630.5(757)	1.2976	28.866	2531	0.401	1016	2.092	0.08772	19.454	0.8659	3552	1.385	182.6		
INLET THROAT		5	0 4														
40.400	136.896	2838	621.8(748)	1.2986	28.866	2519											
40.400	12.389	1582	264.5(390)	1.3443	28.866	1914	2.209	4228	1.928	0.61853	19.454	0.1121	2912	44.500	149.7		
INLET UPNRSK		6	0 2														
40.400	136.896	2838	621.8(748)	1.2986	28.866	2519											
40.400	12.295	1579	263.7(393)	1.3445	28.866	1912	2.214	4233	1.928	0.61572	19.454	0.1234	2948	40.502	151.5		
INLET-DNNRSK		7	0 4														
40.400	81.620	2838	621.8(748)	1.2986	28.866	2519											
40.400	80.089	2721	587.1(714)	1.3023	28.866	2471	0.533	1317	1.964	0.61572	19.454	0.1234	2948	12.605	151.5		
COMBUSTOR		0 8	1 3														
40.410	137.701	2838	621.7(748)	1.2986	28.866	2519											
40.410	14.402	1641	280.6(410)	1.3413	28.866	1947	2.122	4132	1.928	0.67720	19.454	0.1122	2912	43.483	149.7		
COMBUSTOR		0 9	2 3														
41.276	126.694	2824	617.5(744)	1.2991	28.866	2513											
41.276	15.314	1693	294.7(424)	1.3388	28.866	1976	2.034	4019	1.932	0.67893	19.454	0.1119	2869	48.406	147.5		
COMBUSTOR		0 10	3 3														
41.341	125.784	2822	617.2(744)	1.2991	28.866	2513											
41.341	15.408	1698	296.1(425)	1.3386	28.866	1979	2.026	4009	1.932	0.67932	19.454	0.1118	2865	42.319	147.3		
COMBUSTOR		0 11	4 3														
41.500	123.572	2819	616.3(743)	1.2992	28.866	2512											
41.500	15.653	1711	299.5(429)	1.3380	28.866	1986	2.005	3982	1.933	0.68049	19.454	0.1116	2855	42.109	146.8		
COMBUSTOR		0 12	5 4														
42.460	115.849	2801	610.9(738)	1.2998	28.866	2504											
42.460	16.065	1738	306.9(436)	1.3367	28.866	2000	1.950	3900	1.936	0.67340	19.454	0.1128	2822	40.818	145.1		
COMBUSTOR		0 13	6 3														
44.061	108.520	2770	601.5(729)	1.3008	28.866	2491											
44.061	15.760	1737	306.5(436)	1.3368	28.866	2000	1.921	3842	1.937	0.65118	19.454	0.1166	2794	38.878	143.6		
COMBUSTOR		0 14	7 3														
44.310	107.031	2765	600.1(727)	1.3009	28.866	2489											
44.310	15.874	1743	308.2(437)	1.3365	28.866	2003	1.908	3822	1.937	0.65026	19.454	0.1168	2786	38.621	143.2		
COMBUSTOR		0 15	8 3														
44.776	103.854	2757	597.7(725)	1.3012	28.866	2486											
44.776	16.123	1757	312.2(441)	1.3359	28.866	2011	1.880	3780	1.938	0.64776	19.454	0.1173	2770	38.051	142.4		
COMBUSTOR		0 16	9 3														
44.800	103.680	2757	597.6(725)	1.3012	28.866	2486											
44.800	16.126	1758	312.3(442)	1.3359	28.866	2011	1.879	3778	1.938	0.64736	19.454	0.1173	2769	38.010	142.3		
COMBUSTOR		0 17	10 3														
46.260	97.043	2738	591.9(719)	1.3018	28.866	2478											
46.260	15.159	1747	309.2(438)	1.3364	28.866	2005	1.876	3761	1.941	0.60975	19.454	0.1246	2758	35.639	141.8		
COMBUSTOR		0 18	11 3														
47.301	96.694	2726	588.6(716)	1.3022	28.866	2473											
47.301	13.269	1683	291.8(421)	1.3393	28.866	1970	1.956	3853	1.940	0.56753	19.454	0.1336	2765	33.985	143.1		

READING # 0094 BLOCK # 127 TIME = 218.742 MACH 5.2 PT = 298.000 TT = 2935.5

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	[illegible]	A/AC	KCPIP	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
47.310	96.711	2726	566.5(716)	1.3022	28.666	2473											
47.310	13.265	1683	291.8(421)	1.3393	28.666	1970	1.956	3854	1.940	0.56750	19.454	0.1338	2785	33.986	145.1		
COMBUSTOR	0	20	13 3														
48.110	98.094	2717	585.9(713)	1.3024	28.666	2469											
48.110	11.530	1612	272.7(402)	1.3428	28.866	1931	2.050	3959	1.938	0.52895	19.454	0.1436	2818	32.545	144.9		
COMBUSTOR	0	21	14 21														
48.741	58.327	2644	610.7(823)	1.3096	24.118	2672											
48.741	11.165	1762	313.9(527)	1.3413	24.118	2207	1.746	3853	2.275	0.49703	19.758	0.1552	2810	29.763	142.2	0.52	0.07
COMBUSTOR	0	22	15 21														
48.751	65.626	2494	610.6(773)	1.3165	23.978	2609											
48.751	11.136	1601	313.6(497)	1.3501	23.978	2117	1.821	3855	2.249	0.49639	19.758	0.1554	2811	29.737	142.2	0.52	0.01
COMBUSTOR	0	23	16 21														
49.281	64.989	2467	608.9(764)	1.3176	23.958	2597											
49.281	9.600	1525	297.2(454)	1.3541	23.957	2070	1.907	3949	2.246	0.46424	19.758	0.1662	2834	28.492	143.4	0.52	0.00
COMBUSTOR	0	24	17 4														
50.691	54.831	2700	604.2(841)	1.3068	24.188	2693											
50.691	13.200	1910	336.7(575)	1.3345	24.188	2289	1.598	3658	2.285	0.39566	19.758	0.1950	2906	22.495	147.1	0.52	0.11
COMBUSTOR	0	25	18 5														
52.791	40.677	3510	591.2(1118)	1.2664	24.663	2981											
52.791	23.950	3133	450.7(984)	1.2806	24.669	2832	0.936	2651	2.383	0.32614	19.871	0.2379	3097	13.439	155.8	0.54	0.46
COMBUSTOR	0	26	19 4														
53.291	39.747	3665	588.5(1170)	1.2573	25.038	3025											
53.291	23.033	3270	438.5(1029)	1.2730	25.047	2874	0.953	2740	2.393	0.31282	19.871	0.2480	3155	13.318	158.8	0.54	0.54
COMBUSTOR	0	27	20 5														
54.031	38.192	3474	594.3(1187)	1.2696	23.075	3083											
54.031	22.086	3085	439.8(1039)	1.2841	23.080	2921	0.952	2781	2.531	0.29730	20.020	0.2629	3217	12.847	160.7	0.79	0.36
COMBUSTOR	0	28	21 2														
54.041	38.176	3476	594.3(1188)	1.2695	23.078	3083											
54.041	22.073	3087	439.6(1040)	1.2840	23.083	2922	0.952	2782	2.531	0.29708	20.020	0.2631	3218	12.843	160.8	0.79	0.37
COMBUSTOR	0	29	22 4														
54.801	37.012	3673	589.5(1260)	1.2579	23.286	3141											
54.801	21.100	3265	423.3(1103)	1.2743	23.295	2980	0.968	2884	2.545	0.28093	20.020	0.2782	3298	12.591	164.7	0.79	0.43
COMBUSTOR	0	30	23 4														
55.760	35.923	3886	582.9(1338)	1.2441	23.521	3197											
55.760	22.117	3527	431.1(1199)	1.2599	23.537	3064	0.899	2756	2.559	0.26319	20.020	0.2970	3397	11.272	169.7	0.79	0.51
COMBUSTOR	0	31	24 4														
56.216	32.894	4316	591.0(1600)	1.2126	22.408	3408											
56.216	22.601	4041	452.0(1484)	1.2269	22.447	3314	0.796	2637	2.732	0.21420	20.169	0.3676	3761	8.777	187.5	1.04	0.57
COMBUSTOR	0	32	25 2														
56.226	32.894	4318	590.9(1601)	1.2124	22.410	3408											
56.226	22.611	4044	452.1(1485)	1.2267	22.450	3315	0.795	2636	2.732	0.21408	20.169	0.3678	3782	8.769	187.5	1.04	0.57
COMBUSTOR	0	33	26 4														
56.281	32.707	4391	590.5(1630)	1.2062	22.486	3422											
56.281	21.935	4102	440.8(1507)	1.2213	22.535	3325	0.823	2737	2.735	0.21344	20.169	0.3689	3789	9.080	187.8	1.04	0.59
COMBUSTOR	0	34	27 3														
56.421	32.626	4416	589.5(1640)	1.2040	22.513	3426											
56.421	22.009	4132	441.2(1519)	1.2189	22.565	3331	0.818	2724	2.737	0.21187	20.169	0.3717	3803	8.970	188.6	1.04	0.60
COMBUSTOR	0	35	28 5														
56.501	33.200	4382	589.0(1627)	1.2071	22.480	3420											
56.501	22.903	4113	449.7(1512)	1.2212	22.526	3330	0.793	2640	2.733	0.21424	20.169	0.3675	3811	8.788	186.9	1.04	0.59
COMBUSTOR	0	36	29 4														
56.781	33.383	4428	587.0(1645)	1.2031	22.532	3429											
56.781	23.200	4167	449.2(1533)	1.2168	22.582	3341	0.766	2625	2.735	0.21361	20.169	0.3686	3836	8.715	190.2	1.04	0.61
COMBUSTOR	0	37	30 4														
57.007	33.492	4475	585.4(1663)	1.1990	22.585	3437											
57.007	23.295	4217	440.7(1553)	1.2124	22.639	3351	0.766	2634	2.736	0.21317	20.169	0.3694	3855	8.720	191.1	1.04	0.63

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READING = 0094  BLOCK = 127  TIME = 218.742  MACH  5.2  PT = 298.000  TT = 2935.5

                P      T      H              GAMMA  MOLWT SONV  MACH  VEL   S      W/A       W      A/AT     MOMTP   G     IVAC  PHI  ETAC
COMBUSTOR       0    36    31    4
57.731     33.518 4574  580.4(1703) 1.1900 22.699 3453
57.731     23.600 4331  443.9(1598) 1.2022 22.764 3372 0.775 2614 2.739 0.20983 20.169 0.3753   3947  6.523 193.7 1.04 0.67
COMBUSTOR       0    39    32    4
58.751     34.661 4671  573.9(1741) 1.1808 22.816 3467
58.751     23.737 4437  435.6(1640) 1.1919 22.896 3389 0.776 2631 2.741 0.20849 20.169 0.3777   3945  8.523 195.6 1.04 0.71
COMBUSTOR       0    40    33    4
60.761     34.048 4815  562.2(1799) 1.1670 22.994 3486
60.761     21.750 4534  381.7(1670) 1.1783 23.127 3389 0.887 3006 2.742 0.21575 20.169 0.3650   3917 10.077 194.2 1.04 0.79
COMBUSTOR       0    41    34    3
62.181     34.552 4816  554.5(1798) 1.1669 23.013 3484
62.181     20.231 4480  340.4(1652) 1.1809 23.168 3369 0.971 3273 2.740 0.22159 20.169 0.3553   3893 11.271 193.0 1.04 0.79
COMBUSTOR  REGEN   42    35   21
62.181     34.552 4918  637.7(1844) 1.1612 22.924 3519
62.181     18.506 4536  383.0(1677) 1.1751 23.126 3365 1.055 3570 2.757 0.22159 20.169 0.3553   3922 12.295 194.5 1.04 0.79
NOZZLE  AE         43    36    4
87.257     34.552 4816  554.5(1760) 1.1669 23.013 3484
87.257      0.882 2475 -580.5( 834) 1.2837 23.384 2599 2.899 7536 2.740 0.04065 20.169 1.9372   5162  4.761 255.9 1.04 0.79
NOZZLE  PV         44    37    4
87.257     34.552 4816  554.5(1760) 1.1669 23.013 3484
87.257      0.436 2112 -717.6( 697) 1.2977 23.384 2414 3.306 7479 2.740 0.02491 20.169 3.1607   5355  3.089 265.5 1.04 0.79
NOZZLE  AE REGEN   45    38    4
87.257     34.552 4918  637.7(1844) 1.1612 22.924 3519
87.257      0.918 2610 -528.6( 885) 1.2788 23.384 2664 2.868 7640 2.757 0.04065 20.169 1.9372   5244  4.826 260.0 1.04 0.79
NOZZLE  PV REGEN   46    39    4
87.257     34.552 4918  637.7(1844) 1.1612 22.924 3519
87.257      0.436 2211 -680.9( 734) 1.2937 23.384 2466 3.294 8123 2.757 0.02422 20.169 3.2505   5455  3.058 270.5 1.04 0.79
FICTIVE COMBUSTR   68    61    0
62.181    136.896 5269  554.5(1963) 1.1571 23.480 3593
62.181      0.436 1633-1095.7( 585) 1.3024 24.115 2219 4.096 9087 2.623 0.03370 20.169 2.3363   5957  4.760 295.4 1.04 1.00
FICTIVE NOZZLE     69    62    0
87.257    420.951 4900  498.3(1830) 1.1993 23.231 3546
87.257      0.298  995-1104.8( 310) 1.3583 23.384 1695 5.284 8957 2.513 0.04065 20.169 1.9371   5763  5.656 285.7 1.04 0.79
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XAHB	P-IB	P-OH	PDA	DOX	W-IB	G-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.115E 00	0.000	-3.597E-01	0.000	0.000	0.000	2.470E-02	2.559E 00	3.742E-03	0.000	0.000
1.836E 01	1.115E 00	0.000	-3.702E 01	0.000	0.000	0.000	1.634E 02	2.559E 00	3.742E-03	0.000	0.000
3.070E 01	2.015E 00	0.000	-1.639E 02	0.000	0.000	0.000	5.053E 02	4.624E 00	6.762E-03	0.000	0.000
3.508E 01	3.134E 00	0.000	-3.307E 02	0.000	0.000	0.000	6.804E 02	7.192E 00	1.052E-02	0.000	0.000
3.516E 01	3.135E 00	4.318E 00	-3.779E 02	0.000	0.000	0.000	6.839E 02	7.194E 00	1.052E-02	9.910E 00	1.449E-02
3.516E 01	3.135E 00	4.306E 00	-3.780E 02	0.000	0.000	0.000	6.842E 02	7.194E 00	1.052E-02	9.883E 00	1.445E-02
3.555E 01	3.140E 00	3.537E 00	-3.839E 02	0.000	0.000	0.000	7.228E 02	7.206E 00	1.054E-02	6.116E 00	1.187E-02
3.583E 01	3.143E 00	2.975E 00	-3.913E 02	-2.559E 02	-2.559E 02	0.000	7.513E 02	7.213E 00	1.055E-02	6.828E 00	9.983E-03
3.606E 01	3.145E 00	3.926E 00	-3.974E 02	-2.592E 02	-2.592E 02	0.000	7.748E 02	7.218E 00	1.055E-02	9.011E 00	1.318E-02
3.648E 01	3.588E 00	5.670E 00	-4.065E 02	-2.656E 02	-2.656E 02	0.000	8.185E 02	8.255E 00	1.204E-02	1.301E 01	1.903E-02
3.701E 01	3.300E 00	7.871E 00	-4.172E 02	-3.224E 02	-2.740E 02	-4.836E 01	8.745E 02	7.573E 00	1.107E-02	1.806E 01	2.641E-02
3.729E 01	4.227E 00	9.037E 00	-4.228E 02	-3.413E 02	-2.787E 02	-6.261E 01	9.046E 02	9.702E 00	1.419E-02	2.074E 01	3.033E-02
3.803E 01	6.667E 00	1.096E 01	-4.626E 02	-3.910E 02	-2.915E 02	-9.943E 01	9.854E 02	1.530E 01	2.237E-02	2.515E 01	3.677E-02
3.831E 01	8.579E 00	1.169E 01	-4.810E 02	-4.103E 02	-2.969E 02	-1.133E 02	1.017E 03	1.969E 01	2.879E-02	2.682E 01	3.922E-02
3.875E 01	1.157E 01	1.156E 01	-5.160E 02	-4.415E 02	-3.065E 02	-1.350E 02	1.066E 03	2.655E 01	3.882E-02	2.653E 01	3.879E-02
3.878E 01	1.178E 01	1.155E 01	-5.164E 02	-4.438E 02	-3.072E 02	-1.365E 02	1.070E 03	2.703E 01	3.952E-02	2.651E 01	3.876E-02
3.901E 01	1.334E 01	1.253E 01	-5.342E 02	-4.607E 02	-3.129E 02	-1.478E 02	1.096E 03	3.061E 01	4.476E-02	2.876E 01	4.206E-02
3.929E 01	1.304E 01	1.374E 01	-5.496E 02	-4.821E 02	-3.205E 02	-1.616E 02	1.128E 03	2.992E 01	4.375E-02	3.153E 01	4.610E-02
3.950E 01	1.281E 01	1.358E 01	-5.556E 02	-4.983E 02	-3.266E 02	-1.717E 02	1.153E 03	2.940E 01	4.299E-02	3.117E 01	4.558E-02
3.978E 01	1.387E 01	1.337E 01	-5.612E 02	-5.207E 02	-3.355E 02	-1.852E 02	1.185E 03	3.184E 01	4.655E-02	3.070E 01	4.488E-02
4.000E 01	1.470E 01	1.331E 01	-5.661E 02	-5.386E 02	-3.430E 02	-1.956E 02	1.211E 03	3.374E 01	4.933E-02	3.056E 01	4.468E-02
4.040E 01	1.677E 01	1.320E 01	-5.759E 02	-5.720E 02	-3.578E 02	-2.142E 02	1.258E 03	3.849E 01	5.628E-02	3.030E 01	4.431E-02
4.041E 01	1.682E 01	1.320E 01	-5.761E 02	-5.728E 02	-3.581E 02	-2.147E 02	1.259E 03	3.861E 01	5.645E-02	3.030E 01	4.430E-02
4.128E 01	2.130E 01	1.296E 01	-6.077E 02	-6.544E 02	-3.939E 02	-2.604E 02	1.361E 03	4.889E 01	7.149E-02	2.975E 01	4.350E-02
4.134E 01	2.164E 01	1.295E 01	-6.108E 02	-6.611E 02	-3.969E 02	-2.643E 02	1.369E 03	4.966E 01	7.262E-02	2.971E 01	4.344E-02
4.150E 01	2.246E 01	1.294E 01	-6.187E 02	-6.778E 02	-4.042E 02	-2.737E 02	1.388E 03	5.155E 01	7.538E-02	2.970E 01	4.343E-02
4.246E 01	1.410E 01	1.292E 01	-6.388E 02	-7.828E 02	-4.508E 02	-3.320E 02	1.503E 03	3.236E 01	4.732E-02	2.966E 01	4.337E-02
4.406E 01	1.836E 01	1.289E 01	-6.470E 02	-9.664E 02	-5.279E 02	-4.385E 02	1.697E 03	4.213E 01	6.161E-02	2.956E 01	4.326E-02
4.431E 01	1.902E 01	1.308E 01	-6.518E 02	-9.943E 02	-5.392E 02	-4.550E 02	1.727E 03	4.365E 01	6.363E-02	3.002E 01	4.389E-02
4.478E 01	2.026E 01	1.343E 01	-6.620E 02	-1.040E 03	-5.600E 02	-4.800E 02	1.784E 03	4.650E 01	6.799E-02	3.082E 01	4.507E-02
4.480E 01	2.032E 01	1.345E 01	-6.624E 02	-1.042E 03	-5.610E 02	-4.611E 02	1.787E 03	4.665E 01	6.820E-02	3.086E 01	4.513E-02
4.626E 01	1.547E 01	1.455E 01	-6.559E 02	-1.153E 03	-6.247E 02	-5.280E 02	1.966E 03	3.551E 01	5.192E-02	3.340E 01	4.883E-02
4.730E 01	1.201E 01	1.534E 01	-6.168E 02	-1.216E 03	-6.698E 02	-5.483E 02	2.095E 03	2.757E 01	4.031E-02	3.520E 01	5.147E-02
4.731E 01	1.198E 01	1.531E 01	-6.167E 02	-1.219E 03	-6.702E 02	-5.485E 02	2.096E 03	2.750E 01	4.021E-02	3.514E 01	5.138E-02
4.811E 01	8.137E 00	1.299E 01	-5.748E 02	-1.269E 03	-7.047E 02	-5.643E 02	2.196E 03	1.868E 01	2.731E-02	2.982E 01	4.360E-02
4.874E 01	1.116E 01	1.116E 01	-5.379E 02	-1.309E 03	-7.319E 02	-5.771E 02	2.275E 03	2.562E 01	3.747E-02	2.562E 01	3.747E-02
4.875E 01	1.114E 01	1.114E 01	-5.373E 02	-1.310E 03	-7.323E 02	-5.773E 02	2.276E 03	2.556E 01	3.737E-02	2.556E 01	3.737E-02
4.928E 01	9.600E 00	9.600E 00	-5.086E 02	-1.343E 03	-7.551E 02	-5.883E 02	2.343E 03	2.203E 01	3.221E-02	2.203E 01	3.221E-02
5.069E 01	1.320E 01	1.320E 01	-4.244E 02	-1.437E 03	-8.155E 02	-6.212E 02	2.520E 03	3.029E 01	4.430E-02	3.029E 01	4.430E-02
5.279E 01	2.395E 01	2.395E 01	-2.198E 02	-1.626E 03	-9.048E 02	-7.208E 02	2.787E 03	5.496E 01	8.037E-02	5.496E 01	8.037E-02
5.329E 01	2.303E 01	2.303E 01	-1.588E 02	-1.680E 03	-9.260E 02	-7.543E 02	2.850E 03	5.286E 01	7.729E-02	5.286E 01	7.729E-02
5.403E 01	2.209E 01	2.209E 01	-7.262E 01	-1.764E 03	-9.573E 02	-8.066E 02	2.945E 03	5.069E 01	7.411E-02	5.069E 01	7.411E-02
5.404E 01	2.207E 01	2.207E 01	-7.150E 01	-1.765E 03	-9.577E 02	-8.073E 02	2.946E 03	5.066E 01	7.407E-02	5.066E 01	7.407E-02
5.480E 01	2.110E 01	2.110E 01	1.218E 01	-1.860E 03	-9.897E 02	-8.699E 02	3.044E 03	4.842E 01	7.081E-02	4.842E 01	7.081E-02
5.576E 01	2.212E 01	2.212E 01	1.160E 02	-1.992E 03	-1.030E 03	-9.619E 02	3.167E 03	5.076E 01	7.422E-02	5.076E 01	7.422E-02
5.622E 01	2.260E 01	2.260E 01	5.012E 02	-2.058E 03	-1.047E 03	-1.011E 03	3.208E 03	5.187E 01	7.584E-02	5.187E 01	7.584E-02
5.623E 01	2.261E 01	2.261E 01	5.027E 02	-2.059E 03	-1.047E 03	-1.012E 03	3.209E 03	5.189E 01	7.588E-02	5.189E 01	7.588E-02
5.628E 01	2.120E 01	2.267E 01	5.092E 02	-2.067E 03	-1.049E 03	-1.018E 03	3.217E 03	4.865E 01	7.114E-02	5.203E 01	7.607E-02
5.642E 01	2.120E 01	2.282E 01	5.240E 02	-2.088E 03	-1.054E 03	-1.034E 03	3.234E 03	4.865E 01	7.114E-02	5.237E 01	7.657E-02
5.650E 01	2.290E 01	2.290E 01	5.332E 02	-2.099E 03	-1.057E 03	-1.043E 03	3.245E 03	5.256E 01	7.686E-02	5.256E 01	7.686E-02
5.678E 01	2.320E 01	2.320E 01	5.633E 02	-2.139E 03	-1.066E 03	-1.073E 03	3.280E 03	5.324E 01	7.785E-02	5.324E 01	7.785E-02
5.701E 01	2.330E 01	2.330E 01	5.859E 02	-2.171E 03	-1.073E 03	-1.098E 03	3.309E 03	5.346E 01	7.817E-02	5.346E 01	7.817E-02
5.773E 01	2.360E 01	2.360E 01	6.495E 02	-2.271E 03	-1.097E 03	-1.174E 03	3.402E 03	5.416E 01	7.919E-02	5.416E 01	7.919E-02
5.875E 01	2.374E 01	2.374E 01	7.043E 02	-2.402E 03	-1.130E 03	-1.272E 03	3.532E 03	5.448E 01	7.966E-02	5.448E 01	7.966E-02
6.076E 01	2.175E 01	2.175E 01	7.096E 02	-2.636E 03	-1.194E 03	-1.443E 03	3.790E 03	4.992E 01	7.299E-02	4.992E 01	7.299E-02
6.218E 01	2.023E 01	2.023E 01	7.096E 02	-2.795E 03	-1.242E 03	-1.552E 03	3.972E 03	4.643E 01	6.789E-02	4.643E 01	6.789E-02

READING = 0094 BLOCK = 127 TIME = 218.742 MACH 5.2 PT = 298.000 TT = 2935.5

XABS	P-IB	P-OB	PDA	QUX	Q-IP	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.464E 01	1.608E 01	1.608E 01	7.098E 02	-3.074E 03	-1.537E 03	-1.737E 03	4.289E 03	3.689E 01	5.395E-02	3.689E 01	5.395E-02
6.502E 01	1.512E 01	1.544E 01	7.098E 02	-3.116E 03	-1.553E 03	-1.765E 03	4.337E 03	3.471E 01	5.076E-02	3.544E 01	5.182E-02
6.506E 01	1.512E 01	1.537E 01	7.098E 02	-3.122E 03	-1.554E 03	-1.768E 03	4.342E 03	3.471E 01	5.076E-02	3.526E 01	5.159E-02
6.526E 01	1.426E 01	1.504E 01	7.096E 02	-3.144E 03	-1.563E 03	-1.782E 03	4.368E 03	3.273E 01	4.786E-02	3.451E 01	5.046E-02
6.692E 01	7.100E 00	6.412E 00	8.287E 02	-3.294E 03	-1.418E 03	-1.876E 03	4.584E 03	1.629E 01	2.383E-02	1.472E 01	2.152E-02
6.759E 01	5.402E 00	6.187E 00	9.557E 02	-3.340E 03	-1.434E 03	-1.907E 03	4.665E 03	1.240E 01	1.813E-02	1.420E 01	2.076E-02
6.836E 01	3.450E 00	5.129E 00	1.094E 03	-3.390E 03	-1.449E 03	-1.941E 03	4.760E 03	7.918E 00	1.158E-02	1.177E 01	1.721E-02
6.908E 01	2.936E 00	4.140E 00	1.193E 03	-3.437E 03	-1.460E 03	-1.976E 03	4.848E 03	6.737E 00	9.851E-03	9.501E 00	1.389E-02
6.969E 01	2.500E 00	3.051E 00	1.261E 03	-3.475E 03	-1.470E 03	-2.005E 03	4.922E 03	5.737E 00	8.389E-03	7.002E 00	1.024E-02
7.064E 01	2.779E 00	1.355E 00	1.341E 03	-3.524E 03	-1.485E 03	-2.040E 03	5.036E 03	6.377E 00	9.325E-03	3.110E 00	4.547E-03
7.107E 01	2.905E 00	2.361E 00	1.375E 03	-3.544E 03	-1.491E 03	-2.053E 03	5.088E 03	6.667E 00	9.748E-03	5.418E 00	7.923E-03
7.260E 01	4.531E 00	5.940E 00	1.563E 03	-3.613E 03	-1.513E 03	-2.101E 03	5.273E 03	1.040E 01	1.520E-02	1.363E 01	1.993E-02
7.275E 01	4.690E 00	5.898E 00	1.586E 03	-3.621E 03	-1.515E 03	-2.106E 03	5.290E 03	1.076E 01	1.574E-02	1.354E 01	1.979E-02
7.350E 01	4.665E 00	5.690E 00	1.768E 03	-3.660E 03	-1.525E 03	-2.136E 03	5.374E 03	1.071E 01	1.565E-02	1.306E 01	1.909E-02
7.350E 01	4.665E 00	5.689E 00	1.779E 03	-3.660E 03	-1.525E 03	-2.136E 03	5.375E 03	1.071E 01	1.565E-02	1.306E 01	1.909E-02
7.483E 01	4.620E 00	0.000	1.877E 03	-3.739E 03	-1.541E 03	-2.197E 03	5.427E 03	1.060E 01	1.550E-02	0.000	0.000
7.768E 01	5.050E 00	0.000	2.070E 03	-3.773E 03	-1.575E 03	-2.197E 03	5.525E 03	1.159E 01	1.695E-02	0.000	0.000
8.158E 01	7.065E 00	0.000	2.329E 03	-3.815E 03	-1.618E 03	-2.197E 03	5.630E 03	1.621E 01	2.371E-02	0.000	0.000
8.430E 01	7.615E 00	0.000	2.492E 03	-3.856E 03	-1.659E 03	-2.197E 03	5.684E 03	1.748E 01	2.555E-02	0.000	0.000
8.725E 01	8.000E 00	0.000	2.681E 03	-3.927E 03	-1.729E 03	-2.197E 03	5.707E 03	1.836E 01	2.685E-02	0.000	0.000
8.726E 01	8.001E 00	0.000	2.681E 03	-3.927E 03	-1.729E 03	-2.197E 03	5.707E 03	1.836E 01	2.685E-02	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.009E 02	1.009E 02	2.527E-03	3.333E-02
4.041E 01	1.317E-01	1.011E 02	2.544E-03	3.694E-02
4.128E 01	1.131E 01	1.124E 02	2.598E-03	3.802E-02
4.134E 01	8.522E-01	1.132E 02	2.603E-03	3.814E-02
4.150E 01	2.086E 00	1.153E 02	2.615E-03	3.843E-02
4.246E 01	1.254E 01	1.279E 02	2.648E-03	3.801E-02
4.406E 01	2.050E 01	1.484E 02	2.664E-03	3.756E-02
4.431E 01	3.132E 00	1.515E 02	2.674E-03	3.766E-02
4.478E 01	5.853E 00	1.573E 02	2.695E-03	3.786E-02
4.480E 01	3.019E-01	1.576E 02	2.696E-03	3.785E-02
4.626E 01	1.785E 01	1.755E 02	2.706E-03	3.572E-02
4.730E 01	1.205E 01	1.875E 02	2.658E-03	3.246E-02
4.731E 01	1.055E-01	1.876E 02	2.658E-03	3.245E-02
4.811E 01	8.718E 00	1.964E 02	2.600E-03	2.939E-02
4.874E 01	7.465E 00	2.038E 02	3.469E-03	2.443E-02
4.878E 01	1.183E-01	2.039E 02	2.877E-03	2.948E-02
4.928E 01	5.420E 00	2.094E 02	2.723E-03	2.743E-02
5.069E 01	1.224E 01	2.216E 02	2.605E-03	3.254E-02
5.279E 01	1.360E 01	2.352E 02	2.999E-03	3.610E-02
5.329E 01	2.685E 00	2.379E 02	3.299E-03	3.109E-02
5.403E 01	4.195E 00	2.421E 02	3.484E-03	2.887E-02
5.404E 01	5.584E-02	2.421E 02	3.314E-03	3.090E-02
5.480E 01	4.074E 00	2.462E 02	3.265E-03	3.049E-02
5.576E 01	4.847E 00	2.511E 02	3.326E-03	2.950E-02
5.622E 01	1.404E 00	2.525E 02	3.441E-03	2.647E-02
5.623E 01	3.884E-02	2.525E 02	3.498E-03	2.507E-02
5.628E 01	2.194E-01	2.527E 02	3.480E-03	2.605E-02
5.642E 01	9.599E-01	2.533E 02	3.502E-03	2.576E-02
5.650E 01	3.228E-01	2.536E 02	3.603E-03	2.495E-02
5.678E 01	1.108E 00	2.547E 02	3.495E-03	2.605E-02
5.701E 01	8.793E-01	2.556E 02	3.499E-03	2.603E-02
5.773E 01	2.795E 00	2.584E 02	3.499E-03	2.592E-02
5.875E 01	3.908E 00	2.623E 02	3.512E-03	2.583E-02
6.076E 01	8.378E 00	2.707E 02	3.474E-03	2.666E-02
6.218E 01	6.768E 00	2.774E 02	3.486E-03	2.659E-02
8.726E 01	1.914E 00	2.921E 02	3.474E-03	2.324E-02
6.464E 01	1.344E 01	3.055E 02	3.507E-03	2.598E-02
6.502E 01	2.223E 00	3.077E 02	3.496E-03	2.555E-02
6.506E 01	2.384E-01	3.080E 02	3.495E-03	2.553E-02
6.526E 01	1.197E 00	3.092E 02	3.488E-03	2.517E-02
6.692E 01	9.669E 00	3.189E 02	3.369E-03	1.663E-02
6.759E 01	3.401E 00	3.223E 02	3.345E-03	1.526E-02
6.836E 01	3.609E 00	3.259E 02	3.299E-03	1.250E-02
6.908E 01	2.999E 00	3.289E 02	3.267E-03	1.093E-02
6.969E 01	2.268E 00	3.311E 02	3.232E-03	9.204E-03
7.064E 01	3.044E 00	3.342E 02	3.189E-03	7.425E-03
7.107E 01	1.362E 00	3.355E 02	3.219E-03	8.842E-03
7.260E 01	6.117E 00	3.417E 02	3.305E-03	1.417E-02
7.275E 01	6.668E-01	3.423E 02	3.305E-03	1.427E-02
7.350E 01	3.259E 00	3.456E 02	3.297E-03	1.404E-02
7.350E 01	6.213E-03	3.456E 02	3.297E-03	1.404E-02
7.483E 01	1.940E 00	3.475E 02	3.272E-03	1.296E-02
7.768E 01	3.638E 00	3.512E 02	3.266E-03	1.369E-02
8.158E 01	4.191E 00	3.554E 02	3.288E-03	1.663E-02
8.439E 01	2.326E 00	3.577E 02	3.285E-03	1.753E-02
8.725E 01	9.800E-01	3.587E 02	3.279E-03	1.797E-02

READING = 0094 BLOCK = 127 TIME = 218.742 MACH 5.2 PI = 298.000 TI = 2935.5

X	ODRAG	CDRAG	CF	HC
8.726E 01	0.000	3.587E 02	3.279E-03	1.797E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2173.	(LBF)
MEASURED THRUST	2023.	(LBF)
CALCULATED SPECIFIC IMPULSE	3516.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3274.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	1.0692	
MEASURED THRUST COEFFICIENT	1.0141	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5654.	(LBF)
NET THRUST	2265.	(LBF)
SPECIFIC IMPULSE	3665.	(LBF-SEC/LBM)
THRUST COEFFICIENT	1.1353	

MOMENTUM AND FORCES

INLET FRICTION DRAG	100.9	(LBF)
INLET MOMENTUM CHANGE	-676.8	(LBF)
COMBUSTOR FRICTION DRAG	176.5	(LBF)
COMBUSTOR STRUT DRAG	71.25	(LBF)
COMBUSTOR MOMENTUM CHANGE	981.	(LBF)
NOZZLE FRICTION DRAG	66.58	(LBF)
NOZZLE STRUT DRAG	35.13	(LBF)
NOZZLE MOMENTUM CHANGE	1870.	(LBF)
NOZZLE PRESSURE INTEGRAL	1971.	(LBF)
EXTERNAL FRICTION DRAG	61.82	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1629.	(LBF)
TOTAL EXTERNAL DRAG	-1691.	(LBF)
TOTAL STRUT DRAG	106.38	(LBF)
CAVITY FORCE	-1533.	(LBF)
CALCULATED LOAD CELL FORCE	-1051.	(LBF)
MEASURED LOAD CELL FORCE	-1201.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-122.6, -132.2, 0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2809	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.165	(IN)
NOZZLE SHROUD TRAILING EDGE	73.505	(IN)
NOZZLE PLUG TRAILING EDGE	87.257	(IN)
STRUT LEADING EDGE	56.421	(IN)
STRUT TRAILING EDGE	65.021	(IN)
COMBUSTOR EXIT	62.181	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8659	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2694	
DELTA PT2	0.0921	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4594	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2739	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9053	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9159	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9164	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8791	
ENTHALPY AT PO - SUPERSONIC	23.64	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	47.97	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0316
EQUIVALENCE RATIO	1.041
COMBUSTOR EFFICIENCY	0.790
TOTAL PRESSURE RATIO	0.3524
COMBUSTOR EFFECTIVENESS	0.8012
INJECTOR DISCHARGE COEFFICIENTS	0.7586, 0.8381, 0.7017,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.1163
NOZZLE COEFFICIENT - CT	1.0358
PROCESS EFFICIENCY	1.2665
KINETIC ENERGY EFFICIENCY	1.1987

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.266	
1C	44.300	
2A	48.741	C
2C	46.250	
3A	54.031	E
3B	56.216	E
4	44.766	

Reading 94

t = 231.34 sec.

The injected fuel
is possibly unburned.

READING = 0094 BLOCK = 141 TIME = 231.342 MACH 5.2 PT = 298.750 TT = 2945.6

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	298.750	2946	654.2(780)	1.2953	28.867	2563											
0.000	0.383	513	-5.8(123)	1.3989	28.866	1112	5.170	5747	1.885	0.08008	17.759	0.8659	3257	7.151	183.4		
SPIKE TIP NS		2	0 6														
0.600	14.687	2946	654.2(780)	1.2951	28.866	2563											
0.600	13.509	2890	637.4(764)	1.2969	28.866	2541	0.361	917	2.093	0.08008	17.759	0.8659	3502	1.141	197.2		
WIND TUNNEL		3	0 0														
0.000	298.750	2946	654.2(780)	1.2953	28.867	2563											
0.000	0.435	532	-1.1(128)	1.3987	28.866	1132	5.058	5726	1.885	0.08754	19.414	0.8659	3552	7.790	183.0		
SPIKE TIP NS		4	0 0														
0.600	14.687	2946	654.2(780)	1.2951	28.866	2563											
0.600	13.247	2877	633.5(760)	1.2973	28.866	2535	0.401	1018	2.093	0.08754	19.414	0.8659	3552	1.384	183.0		
INLET THROAT		5	0 4														
40.400	120.775	2865	630.1(757)	1.2978	28.866	2531											
40.400	13.675	1693	294.6(424)	1.3388	28.866	1976	2.074	4097	1.940	0.61829	19.414	0.1121	2865	43.039	147.6		
INLET UPNRSK		6	0 2														
40.400	120.775	2865	630.1(757)	1.2978	28.866	2531											
40.400	13.528	1688	293.3(423)	1.3390	28.866	1973	2.080	4105	1.940	0.61446	19.414	0.1234	2904	39.200	149.6		
INLET DNNRSK		7	0 4														
40.400	79.876	2865	630.1(757)	1.2978	28.866	2531											
40.400	65.753	2740	592.5(720)	1.3017	28.866	2478	0.553	1371	1.968	0.61446	19.414	0.1234	2904	13.087	149.6		
COMBUSTOR	0	8	1 21														
40.410	110.031	2835	629.0(768)	1.2994	28.090	2554											
40.410	11.178	1626	275.6(417)	1.3429	28.090	1966	2.139	4206	1.990	0.67728	19.456	0.1122	2864	44.267	147.2	0.07	0.07
COMBUSTOR	0	9	2 21														
41.266	95.451	2780	625.1(766)	1.3020	27.491	2558											
41.266	14.358	1756	319.0(462)	1.3378	27.491	2061	1.899	3914	2.028	0.68062	19.489	0.1118	2782	41.399	142.7	0.13	0.04
COMBUSTOR	0	10	3 21														
41.276	96.996	2758	625.1(760)	1.3031	27.467	2550											
41.276	14.395	1734	319.5(456)	1.3390	27.467	2050	1.907	3910	2.025	0.68015	19.489	0.1119	2781	41.330	142.7	0.13	0.01
COMBUSTOR	0	11	4 21														
41.341	96.351	2754	624.8(759)	1.3033	27.464	2549											
41.341	14.636	1742	322.6(458)	1.3387	27.464	2054	1.893	3888	2.025	0.68054	19.489	0.1118	2774	41.124	142.4	0.13	0.00
COMBUSTOR	0	12	5 21														
41.500	94.322	2751	624.0(758)	1.3034	27.463	2548											
41.500	15.323	1769	330.7(466)	1.3375	27.463	2070	1.851	3831	2.026	0.68172	19.489	0.1116	2759	40.588	141.6	0.13	0.00
COMBUSTOR	0	13	6 21														
42.460	68.143	2964	619.4(820)	1.2933	27.715	2622											
42.460	12.519	1984	322.0(526)	1.3266	27.716	2173	1.775	3857	2.067	0.67461	19.489	0.1128	2698	40.439	138.4	0.13	0.35
COMBUSTOR	0	14	7 21														
44.061	76.380	2744	611.3(755)	1.3031	27.500	2542											
44.061	16.866	1906	359.8(506)	1.3317	27.500	2142	1.656	3547	2.040	0.65235	19.489	0.1166	2653	35.963	136.1	0.13	0.05
COMBUSTOR	0	15	8 21														
44.310	77.177	2711	610.0(745)	1.3046	27.469	2530											
44.310	17.419	1891	364.4(502)	1.3326	27.469	2136	1.641	3506	2.036	0.65143	19.489	0.1168	2645	35.490	135.7	0.13	0.01
COMBUSTOR	0	16	9 21														
44.776	76.025	2699	607.8(742)	1.3050	27.464	2525											
44.776	18.454	1917	373.2(509)	1.3317	27.464	2150	1.594	3426	2.036	0.64892	19.489	0.1173	2629	34.549	134.9	0.13	0.00
COMBUSTOR	0	17	10 21														
44.800	75.974	2698	607.7(742)	1.3050	27.463	2525											
44.800	18.508	1918	373.7(509)	1.3316	27.463	2150	1.591	3422	2.036	0.64852	19.489	0.1173	2629	34.485	134.9	0.13	0.00
COMBUSTOR	0	18	11 21														
46.260	65.384	2866	601.6(790)	1.2970	27.669	2584											
46.260	17.154	2087	365.2(556)	1.3233	27.669	2228	1.544	3439	2.060	0.61084	19.489	0.1246	2631	32.648	135.0	0.13	0.28

READING = 0094 BLOCK = 141 TIME = 231.342 MACH 5.2 PT = 298.750 TT = 2945.6

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
47.301	72.369	2694	597.7(740)	1.3048	27.494	2521											
47.301	16.188	1875	352.6(497)	1.3330	27.493	2126	1.647	3502	2.039	0.56855	19.489	0.1338	2676	30.939	137.3	0.13	0.04
COMBUSTOR	0	20	13 21														
47.310	73.507	2670	597.6(733)	1.3059	27.468	2512											
47.310	16.151	1848	352.2(489)	1.3343	27.468	2113	1.659	3504	2.035	0.56852	19.489	0.1338	2676	30.958	137.3	0.13	0.01
COMBUSTOR	0	21	14 3														
48.110	72.324	2702	594.9(742)	1.3043	27.513	2524											
48.110	15.753	1869	345.5(495)	1.3330	27.513	2122	1.665	3532	2.039	0.52990	19.489	0.1436	2719	29.085	139.5	0.13	0.07
COMBUSTOR	0	22	15 3														
48.751	72.675	2681	593.0(736)	1.3051	27.497	2515											
48.751	13.254	1773	322.3(467)	1.3370	27.496	2070	1.778	3680	2.037	0.48962	19.489	0.1554	2757	28.003	141.5	0.13	0.05
COMBUSTOR	0	23	16 21														
49.281	73.632	2650	591.5(727)	1.3065	27.468	2504											
49.281	10.875	1659	297.8(435)	1.3424	27.468	2008	1.910	3834	2.033	0.45792	19.489	0.1662	2785	27.282	142.9	0.13	0.01
COMBUSTOR	0	24	17 2														
50.691	72.203	2642	588.4(725)	1.3067	27.471	2500											
50.691	8.625	1566	270.9(409)	1.3470	27.471	1954	2.040	3986	2.033	0.39027	19.489	0.1950	2845	24.174	146.0	0.13	0.01
COMBUSTOR	0	25	18 21														
52.791	65.323	2606	580.9(720)	1.3081	27.213	2495											
52.791	4.850	1361	214.8(355)	1.3586	27.213	1838	2.328	4280	2.052	0.32177	19.604	0.2379	2904	21.403	148.1	0.15	0.01
COMBUSTOR	0	26	19 21														
53.291	65.995	2593	580.1(716)	1.3087	27.203	2490											
53.291	4.933	1356	216.4(354)	1.3590	27.203	1835	2.324	4266	2.050	0.30862	19.604	0.2480	2913	20.462	148.6	0.15	0.00
COMBUSTOR	0	27	20 21														
54.041	65.235	2588	579.0(715)	1.3089	27.201	2488											
54.041	4.668	1338	211.7(349)	1.3601	27.201	1824	2.351	4287	2.050	0.29092	19.604	0.2631	2927	19.382	149.3	0.15	0.00
COMBUSTOR	0	28	21 21														
54.801	64.424	2584	577.9(714)	1.3090	27.201	2487											
54.801	4.400	1319	206.6(344)	1.3611	27.201	1812	2.379	4310	2.051	0.27511	19.604	0.2782	2940	18.427	150.0	0.15	0.00
COMBUSTOR	0	29	22 21														
55.760	56.752	2651	576.6(733)	1.3059	27.277	2512											
55.760	3.843	1356	195.2(353)	1.3583	27.277	1833	2.384	4369	2.066	0.25773	19.604	0.2970	2954	17.498	150.7	0.15	0.09
COMBUSTOR	0	30	23 3														
56.226	54.787	2609	576.1(721)	1.3078	27.233	2496											
56.226	3.572	1318	197.0(343)	1.3610	27.233	1809	2.407	4356	2.065	0.20810	19.604	0.3678	2991	14.086	152.5	0.15	0.04
COMBUSTOR	0	31	24 21														
56.281	55.800	2583	576.1(713)	1.3090	27.206	2486											
56.281	2.645	1196	171.6(310)	1.3685	27.206	1729	2.601	4499	2.061	0.20747	19.604	0.3689	2991	14.506	152.6	0.15	0.01
COMBUSTOR	0	32	25 21														
56.421	56.066	2579	575.9(712)	1.3092	27.202	2484											
56.421	2.605	1187	170.3(307)	1.3691	27.202	1723	2.614	4505	2.060	0.20595	19.604	0.3717	2993	14.419	152.7	0.15	0.00
COMBUSTOR	0	33	26 21														
56.501	53.858	2628	575.8(726)	1.3069	27.254	2503											
56.501	3.413	1319	191.3(343)	1.3607	27.254	1809	2.424	4386	2.068	0.20825	19.604	0.3675	2994	14.196	152.7	0.15	0.06
COMBUSTOR	0	34	27 21														
56.781	57.896	2584	575.5(713)	1.3089	27.209	2486											
56.781	3.250	1252	186.0(325)	1.3651	27.209	1767	2.498	4415	2.058	0.20764	19.604	0.3686	2997	14.247	152.9	0.15	0.01
COMBUSTOR	0	35	28 2														
57.007	58.009	2587	575.3(714)	1.3088	27.212	2487											
57.007	3.393	1267	189.2(329)	1.3641	27.212	1777	2.473	4396	2.059	0.20721	19.604	0.3694	2999	14.155	153.0	0.15	0.01
COMBUSTOR	0	36	29 4														
57.731	49.071	2708	574.6(749)	1.3032	27.345	2533											
57.731	3.850	1445	200.6(377)	1.3526	27.345	1885	2.295	4326	2.082	0.20396	19.604	0.3753	3006	13.713	153.3	0.15	0.17
COMBUSTOR	0	37	30 4														
58.751	57.635	2599	573.8(718)	1.3082	27.230	2491											
58.751	3.300	1267	184.0(329)	1.3640	27.230	1777	2.486	4417	2.060	0.20266	19.604	0.3777	3010	13.910	153.6	0.15	0.03

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READING = 0094  BLOCK = 141  TIME = 231.342  MACH  5.2  PT = 298.750  TT = 2945.6

                   P      T      H              GAMMA  MOLWT SONV  MACH  VEL    S      W/A      W      A/AC    MOMTM   Q      IVAC  PHI  ETAC
COMBUSTOR          0   38   31  21
60.761        49.986 2572   572.7( 710) 1.3094 27.205 2481
60.761         1.462 1044   130.8( 269) 1.3776 27.205 1621 2.901 4703 2.068 0.20971 19.604 0.3650   3002 15.326 153.1 0.15 0.01
COMBUSTOR          0   39   32  21
62.181        61.321 2566   572.1( 708) 1.3096 27.202 2478
62.181         2.981 1195   172.5( 310) 1.3686 27.201 1729 2.586 4472 2.052 0.21540 19.604 0.3553   2996 14.968 152.8 0.15 0.00
COMBUSTOR          0   40   33   5
64.645        32.883 3103   570.7( 866) 1.2843 27.799 2670
64.645         5.996 2090   258.0( 558) 1.3194 27.801 2221 1.781 3956 2.137 0.20417 19.604 0.3749   2986 12.551 152.3 0.15 0.69
COMBUSTOR          0   41   34   5
65.021        35.882 2886   570.4( 802) 1.2948 27.555 2596
65.021         4.528 1757   229.5( 464) 1.3348 27.555 2057 2.008 4130 2.117 0.18981 19.604 0.4032   2984 12.184 152.2 0.15 0.41
COMBUSTOR  REGEN   42   35   3
65.021        35.882 3135   650.4( 879) 1.2862 27.554 2697
65.021         4.933 1967   290.4( 524) 1.3265 27.555 2170 1.956 4244 2.144 0.18981 19.604 0.4032   3096 12.520 157.9 0.15 0.41
NOZZLE   AE        43   36   3
87.257        35.882 2886   570.4( 799) 1.2948 27.555 2596
87.257         0.376  910    -2.7( 231) 1.3827 27.555 1506 3.555 5355 2.117 0.03951 19.604 1.9371   3450  3.288 176.0 0.15 0.41
NOZZLE   PO        44   37   3
87.257        35.882 2886   570.4( 799) 1.2948 27.555 2596
87.257         0.435  947     7.1( 241) 1.3806 27.555 1536 3.457 5309 2.117 0.04353 19.604 1.7583   3431  3.592 175.0 0.15 0.41
NOZZLE   AE REGEN  45   38   3
87.257        35.882 3135   650.4( 879) 1.2862 27.554 2697
87.257         0.409 1030    28.9( 263) 1.3758 27.555 1599 3.487 5577 2.144 0.03951 19.604 1.9371   3601  3.424 183.7 0.15 0.41
NOZZLE   PO REGEN  46   39   3
87.257        35.882 3135   650.4( 879) 1.2862 27.554 2697
87.257         0.435 1048    33.5( 268) 1.3747 27.555 1612 3.446 5556 2.144 0.04118 19.604 1.8588   3593  3.555 183.3 0.15 0.41
FICTIVE COMBUSTR   66   59   0
65.021       120.775 3338   570.4( 936) 1.2738 28.075 2744
65.021         0.435  825  -166.3( 207) 1.3835 28.078 1421 4.271 6072 2.056 0.05825 19.604 1.3141   3846  5.496 196.2 0.15 1.00
FICTIVE NOZZLE     67   60   0
87.257        51.142 2865   563.7( 795) 1.2956 27.555 2588
87.257         0.314  776   -37.2( 197) 1.3893 27.555 1395 3.931 5484 2.090 0.03951 19.604 1.9371   3497  3.367 178.4 0.15 0.41
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READING = 0094 BLOCK = 141 TIME = 231.342 MACH 5.2 PT = 298.750 TT = 2945.6

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.130E 00	0.000	-3.598E-01	0.000	0.000	0.000	2.470E-02	2.595E 00	3.782E-03	0.000	0.000
1.836E 01	1.130E 00	0.000	-3.751E 01	0.000	0.000	0.000	1.634E 02	2.595E 00	3.782E-03	0.000	0.000
3.070E 01	1.885E 00	0.000	-1.597E 02	0.000	0.000	0.000	5.053E 02	4.329E 00	6.310E-03	0.000	0.000
3.508E 01	3.199E 00	0.000	-3.245E 02	0.000	0.000	0.000	6.804E 02	7.347E 00	1.071E-02	0.000	0.000
3.516E 01	3.224E 00	4.331E 00	-3.719E 02	0.000	0.000	0.000	6.839E 02	7.403E 00	1.079E-02	9.947E 00	1.450E-02
3.516E 01	3.226E 00	4.317E 00	-3.719E 02	0.000	0.000	0.000	6.842E 02	7.408E 00	1.080E-02	9.914E 00	1.445E-02
3.555E 01	3.345E 00	3.411E 00	-3.792E 02	0.000	0.000	0.000	7.228E 02	7.682E 00	1.120E-02	7.833E 00	1.142E-02
3.583E 01	3.262E 00	2.750E 00	-3.881E 02	-1.947E 02	-1.947E 02	0.000	7.513E 02	7.492E 00	1.092E-02	6.315E 00	9.205E-03
3.606E 01	3.195E 00	3.729E 00	-3.951E 02	-1.973E 02	-1.973E 02	0.000	7.748E 02	7.337E 00	1.069E-02	8.563E 00	1.248E-02
3.648E 01	3.579E 00	5.523E 00	-4.050E 02	-2.021E 02	-2.021E 02	0.000	8.185E 02	8.219E 00	1.198E-02	1.268E 01	1.849E-02
3.701E 01	3.487E 00	7.787E 00	-4.172E 02	-2.521E 02	-2.085E 02	-4.356E 01	8.745E 02	8.009E 00	1.167E-02	1.788E 01	2.607E-02
3.729E 01	4.324E 00	8.987E 00	-4.238E 02	-2.684E 02	-2.120E 02	-5.640E 01	9.046E 02	9.930E 00	1.447E-02	2.064E 01	3.008E-02
3.803E 01	6.525E 00	1.079E 01	-4.638E 02	-3.114E 02	-2.218E 02	-8.964E 01	9.854E 02	1.498E 01	2.184E-02	2.478E 01	3.612E-02
3.831E 01	8.578E 00	1.147E 01	-4.821E 02	-3.281E 02	-2.259E 02	-1.022E 02	1.017E 03	1.970E 01	2.871E-02	2.635E 01	3.841E-02
3.875E 01	1.179E 01	1.173E 01	-5.178E 02	-3.552E 02	-2.334E 02	-1.218E 02	1.066E 03	2.707E 01	3.946E-02	2.694E 01	3.927E-02
3.878E 01	1.201E 01	1.175E 01	-5.203E 02	-3.572E 02	-2.340E 02	-1.232E 02	1.070E 03	2.759E 01	4.021E-02	2.698E 01	3.933E-02
3.901E 01	1.369E 01	1.254E 01	-5.367E 02	-3.719E 02	-2.385E 02	-1.334E 02	1.096E 03	3.143E 01	4.582E-02	2.880E 01	4.198E-02
3.929E 01	1.332E 01	1.351E 01	-5.531E 02	-3.905E 02	-2.446E 02	-1.459E 02	1.128E 03	3.059E 01	4.459E-02	3.103E 01	4.523E-02
3.950E 01	1.305E 01	9.507E 00	-5.623E 02	-4.047E 02	-2.496E 02	-1.551E 02	1.153E 03	2.997E 01	4.368E-02	2.183E 01	3.182E-02
3.978E 01	1.406E 01	4.125E 00	-5.794E 02	-4.242E 02	-2.569E 02	-1.674E 02	1.185E 03	3.228E 01	4.706E-02	9.473E 00	1.381E-02
4.000E 01	1.484E 01	4.465E 00	-5.964E 02	-4.399E 02	-2.631E 02	-1.768E 02	1.211E 03	3.409E 01	4.969E-02	1.025E 01	1.495E-02
4.040E 01	1.720E 01	5.085E 00	-6.273E 02	-4.691E 02	-2.753E 02	-1.938E 02	1.258E 03	3.949E 01	5.756E-02	1.168E 01	1.702E-02
4.041E 01	1.725E 01	5.101E 00	-6.279E 02	-4.698E 02	-2.756E 02	-1.942E 02	1.259E 03	3.962E 01	5.775E-02	1.171E 01	1.707E-02
4.127E 01	2.229E 01	6.429E 00	-6.982E 02	-5.398E 02	-3.049E 02	-2.349E 02	1.360E 03	5.118E 01	7.460E-02	1.476E 01	2.152E-02
4.128E 01	2.235E 01	6.444E 00	-6.991E 02	-5.406E 02	-3.053E 02	-2.354E 02	1.361E 03	5.131E 01	7.480E-02	1.480E 01	2.157E-02
4.134E 01	2.273E 01	6.545E 00	-7.046E 02	-5.465E 02	-3.077E 02	-2.388E 02	1.369E 03	5.219E 01	7.607E-02	1.503E 01	2.191E-02
4.150E 01	2.366E 01	6.983E 00	-7.183E 02	-5.609E 02	-3.137E 02	-2.472E 02	1.388E 03	5.434E 01	7.921E-02	1.604E 01	2.338E-02
4.246E 01	1.541E 01	9.626E 00	-7.659E 02	-6.512E 02	-3.523E 02	-2.990E 02	1.503E 03	3.539E 01	5.159E-02	2.211E 01	3.222E-02
4.406E 01	1.970E 01	1.403E 01	-7.899E 02	-8.098E 02	-4.164E 02	-3.934E 02	1.697E 03	4.523E 01	6.593E-02	3.223E 01	4.698E-02
4.431E 01	2.036E 01	1.447E 01	-7.947E 02	-8.345E 02	-4.259E 02	-4.085E 02	1.727E 03	4.676E 01	6.816E-02	3.324E 01	4.845E-02
4.478E 01	2.161E 01	1.530E 01	-8.042E 02	-8.777E 02	-4.434E 02	-4.344E 02	1.784E 03	4.963E 01	7.234E-02	3.513E 01	5.121E-02
4.480E 01	2.167E 01	1.534E 01	-8.045E 02	-8.799E 02	-4.443E 02	-4.356E 02	1.787E 03	4.978E 01	7.255E-02	3.523E 01	5.135E-02
4.626E 01	1.639E 01	1.792E 01	-7.854E 02	-9.987E 02	-4.959E 02	-5.028E 02	1.966E 03	3.763E 01	5.485E-02	4.116E 01	5.999E-02
4.730E 01	1.261E 01	1.976E 01	-7.280E 02	-1.075E 03	-5.299E 02	-5.452E 02	2.095E 03	2.897E 01	4.222E-02	4.538E 01	6.615E-02
4.731E 01	1.258E 01	1.972E 01	-7.277E 02	-1.076E 03	-5.302E 02	-5.456E 02	2.096E 03	2.889E 01	4.211E-02	4.529E 01	6.601E-02
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4.875E 01	1.325E 01	1.325E 01	-6.323E 02	-1.167E 03	-5.737E 02	-5.932E 02	2.276E 03	3.044E 01	4.436E-02	3.044E 01	4.436E-02
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5.069E 01	8.625E 00	8.625E 00	-5.268E 02	-1.256E 03	-6.256E 02	-6.303E 02	2.520E 03	1.981E 01	2.887E-02	1.981E 01	2.887E-02
5.279E 01	4.850E 00	4.850E 00	-4.527E 02	-1.332E 03	-6.734E 02	-6.585E 02	2.787E 03	1.114E 01	1.623E-02	1.114E 01	1.623E-02
5.329E 01	4.933E 00	4.933E 00	-4.399E 02	-1.348E 03	-6.835E 02	-6.640E 02	2.850E 03	1.133E 01	1.651E-02	1.133E 01	1.651E-02
5.404E 01	4.668E 00	4.668E 00	-4.214E 02	-1.370E 03	-6.978E 02	-6.719E 02	2.946E 03	1.072E 01	1.563E-02	1.072E 01	1.563E-02
5.480E 01	4.400E 00	4.400E 00	-4.038E 02	-1.391E 03	-7.111E 02	-6.796E 02	3.044E 03	1.010E 01	1.473E-02	1.010E 01	1.473E-02
5.576E 01	3.843E 00	3.843E 00	-3.840E 02	-1.415E 03	-7.263E 02	-6.887E 02	3.167E 03	8.825E 00	1.286E-02	8.825E 00	1.286E-02
5.623E 01	3.572E 00	3.572E 00	-3.462E 02	-1.425E 03	-7.324E 02	-6.930E 02	3.209E 03	8.204E 00	1.196E-02	8.204E 00	1.196E-02
5.628E 01	1.750E 00	3.540E 00	-3.452E 02	-1.427E 03	-7.330E 02	-6.935E 02	3.217E 03	4.019E 00	5.858E-03	8.130E 00	1.185E-02
5.642E 01	1.750E 00	3.459E 00	-3.429E 02	-1.429E 03	-7.346E 02	-6.947E 02	3.234E 03	4.019E 00	5.858E-03	7.944E 00	1.158E-02
5.650E 01	3.413E 00	3.413E 00	-3.415E 02	-1.431E 03	-7.355E 02	-6.955E 02	3.245E 03	7.837E 00	1.142E-02	7.837E 00	1.142E-02
5.678E 01	3.250E 00	3.250E 00	-3.371E 02	-1.436E 03	-7.385E 02	-6.980E 02	3.280E 03	7.464E 00	1.088E-02	7.464E 00	1.088E-02
5.701E 01	3.393E 00	3.393E 00	-3.339E 02	-1.441E 03	-7.408E 02	-7.001E 02	3.309E 03	7.791E 00	1.136E-02	7.791E 00	1.136E-02
5.773E 01	3.850E 00	3.850E 00	-3.241E 02	-1.454E 03	-7.474E 02	-7.068E 02	3.402E 03	8.841E 00	1.289E-02	8.841E 00	1.289E-02
5.875E 01	3.300E 00	3.300E 00	-3.158E 02	-1.470E 03	-7.550E 02	-7.155E 02	3.532E 03	7.578E 00	1.105E-02	7.578E 00	1.105E-02
6.076E 01	1.462E 00	1.462E 00	-3.153E 02	-1.492E 03	-7.649E 02	-7.272E 02	3.790E 03	3.359E 00	4.895E-03	3.359E 00	4.895E-03
6.218E 01	2.981E 00	2.981E 00	-3.153E 02	-1.504E 03	-7.698E 02	-7.337E 02	3.972E 03	6.846E 00	9.979E-03	6.846E 00	9.979E-03
6.464E 01	5.996E 00	5.996E 00	-3.153E 02	-1.532E 03	-7.785E 02	-7.538E 02	4.289E 03	1.377E 01	2.007E-02	1.377E 01	2.007E-02
6.502E 01	2.600E 00	6.456E 00	-3.153E 02	-1.538E 03	-7.798E 02	-7.580E 02	4.337E 03	5.971E 00	8.703E-03	1.483E 01	2.161E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.506E 01	2.600E 00	6.505E 00	-3.153E 02	-1.538E 03	-7.800E 02	-7.584E 02	4.342E 03	5.971E 00	8.703E-03	1.494E 01	2.178E-02
6.526E 01	2.694E 00	6.750E 00	-3.153E 02	-1.541E 03	-7.807E 02	-7.607E 02	4.368E 03	6.187E 00	9.018E-03	1.550E 01	2.259E-02
6.692E 01	3.475E 00	2.687E 00	-2.698E 02	-1.563E 03	-7.873E 02	-7.755E 02	4.584E 03	7.980E 00	1.163E-02	6.172E 00	8.996E-03
6.759E 01	2.682E 00	2.047E 00	-2.146E 02	-1.570E 03	-7.903E 02	-7.793E 02	4.665E 03	6.158E 00	8.976E-03	4.702E 00	6.854E-03
6.836E 01	1.770E 00	2.330E 00	-1.530E 02	-1.578E 03	-7.939E 02	-7.839E 02	4.760E 03	4.065E 00	5.925E-03	5.352E 00	7.801E-03
6.908E 01	1.746E 00	2.595E 00	-9.904E 01	-1.587E 03	-7.972E 02	-7.900E 02	4.848E 03	4.009E 00	5.843E-03	5.959E 00	8.686E-03
6.969E 01	1.725E 00	2.093E 00	-5.518E 01	-1.595E 03	-7.997E 02	-7.950E 02	4.922E 03	3.961E 00	5.774E-03	4.805E 00	7.004E-03
7.064E 01	1.370E 00	1.310E 00	-3.214E 00	-1.603E 03	-8.034E 02	-7.992E 02	5.036E 03	3.147E 00	4.587E-03	3.008E 00	4.385E-03
7.107E 01	1.210E 00	1.276E 00	1.525E 01	-1.605E 03	-8.050E 02	-8.001E 02	5.088E 03	2.779E 00	4.050E-03	2.930E 00	4.271E-03
7.260E 01	7.911E-01	1.155E 00	6.781E 01	-1.617E 03	-8.099E 02	-8.071E 02	5.273E 03	1.817E 00	2.648E-03	2.652E 00	3.866E-03
7.275E 01	7.500E-01	1.067E 00	7.181E 01	-1.618E 03	-8.104E 02	-8.081E 02	5.290E 03	1.722E 00	2.510E-03	2.451E 00	3.573E-03
7.350E 01	6.779E-01	6.300E-01	9.893E 01	-1.627E 03	-8.124E 02	-8.142E 02	5.374E 03	1.557E 00	2.269E-03	1.447E 00	2.109E-03
7.350E 01	6.775E-01	6.277E-01	1.001E 02	-1.627E 03	-8.124E 02	-8.143E 02	5.375E 03	1.556E 00	2.268E-03	1.441E 00	2.101E-03
7.483E 01	5.500E-01	0.000	1.131E 02	-1.643E 03	-8.156E 02	-8.271E 02	5.427E 03	1.263E 00	1.841E-03	0.000	0.000
7.768E 01	7.950E-01	0.000	1.400E 02	-1.648E 03	-8.211E 02	-8.271E 02	5.525E 03	1.826E 00	2.661E-03	0.000	0.000
8.158E 01	9.850E-01	0.000	1.780E 02	-1.654E 03	-8.267E 02	-8.271E 02	5.630E 03	2.262E 00	3.297E-03	0.000	0.000
8.439E 01	9.600E-01	0.000	1.996E 02	-1.659E 03	-8.318E 02	-8.271E 02	5.684E 03	2.205E 00	3.213E-03	0.000	0.000
8.725E 01	1.025E 00	0.000	2.236E 02	-1.669E 03	-8.415E 02	-8.271E 02	5.707E 03	2.354E 00	3.431E-03	0.000	0.000
8.726E 01	1.025E 00	0.000	2.236E 02	-1.669E 03	-8.415E 02	-8.271E 02	5.707E 03	2.354E 00	3.431E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.637E 01	9.637E 01	2.612E-03	3.485E-02
4.041E 01	1.387E-01	9.651E 01	2.768E-03	2.968E-02
4.127E 01	1.218E 01	1.087E 02	2.851E-03	3.487E-02
4.128E 01	1.355E-01	1.088E 02	2.745E-03	3.608E-02
4.134E 01	8.738E-01	1.097E 02	2.736E-03	3.658E-02
4.150E 01	2.124E 00	1.118E 02	2.753E-03	3.751E-02
4.246E 01	1.295E 01	1.248E 02	2.810E-03	3.203E-02
4.406E 01	2.153E 01	1.463E 02	3.008E-03	3.599E-02
4.431E 01	3.191E 00	1.495E 02	2.890E-03	3.818E-02
4.478E 01	5.756E 00	1.553E 02	2.891E-03	3.953E-02
4.480E 01	2.937E-01	1.555E 02	2.889E-03	3.962E-02
4.626E 01	1.738E 01	1.729E 02	2.882E-03	3.729E-02
4.730E 01	1.198E 01	1.849E 02	2.956E-03	3.439E-02
4.731E 01	1.049E-01	1.850E 02	2.850E-03	3.561E-02
4.811E 01	8.449E 00	1.935E 02	2.796E-03	3.508E-02
4.875E 01	6.371E 00	1.998E 02	2.769E-03	3.100E-02
4.928E 01	5.033E 00	2.049E 02	2.708E-03	2.721E-02
5.069E 01	1.212E 01	2.170E 02	2.599E-03	2.294E-02
5.279E 01	1.565E 01	2.326E 02	2.560E-03	1.472E-02
5.329E 01	3.362E 00	2.360E 02	2.481E-03	1.505E-02
5.404E 01	4.705E 00	2.407E 02	2.449E-03	1.437E-02
5.480E 01	4.486E 00	2.452E 02	2.425E-03	1.365E-02
5.576E 01	5.336E 00	2.505E 02	2.394E-03	1.226E-02
5.623E 01	1.623E 00	2.521E 02	2.422E-03	1.087E-02
5.628E 01	2.404E-01	2.524E 02	2.352E-03	8.858E-03
5.642E 01	6.001E-01	2.530E 02	2.318E-03	8.817E-03
5.650E 01	3.641E-01	2.533E 02	2.655E-03	9.878E-03
5.678E 01	1.275E 00	2.546E 02	2.369E-03	1.021E-02
5.701E 01	9.605E-01	2.556E 02	2.322E-03	1.065E-02
5.773E 01	3.004E 00	2.586E 02	2.334E-03	1.159E-02
5.875E 01	4.295E 00	2.629E 02	2.425E-03	1.005E-02
6.076E 01	8.913E 00	2.718E 02	2.303E-03	5.655E-03
6.218E 01	6.305E 00	2.781E 02	2.266E-03	9.712E-03
6.464E 01	1.026E 01	2.884E 02	2.450E-03	1.537E-02
6.502E 01	1.579E 00	2.899E 02	2.845E-03	1.117E-02
6.506E 01	1.741E-01	2.901E 02	2.715E-03	1.188E-02
6.526E 01	8.571E-01	2.910E 02	2.720E-03	1.217E-02
6.692E 01	6.572E 00	2.975E 02	2.629E-03	9.032E-03
6.759E 01	2.081E 00	2.996E 02	2.576E-03	7.460E-03
6.836E 01	2.151E 00	3.018E 02	2.543E-03	6.707E-03
6.908E 01	1.942E 00	3.037E 02	2.548E-03	6.978E-03
6.969E 01	1.600E 00	3.053E 02	2.523E-03	6.347E-03
7.064E 01	2.151E 00	3.075E 02	2.455E-03	4.876E-03
7.107E 01	8.553E-01	3.083E 02	2.439E-03	4.603E-03
7.260E 01	2.739E 00	3.111E 02	2.386E-03	3.814E-03
7.275E 01	2.312E-01	3.113E 02	2.372E-03	3.622E-03
7.350E 01	9.997E-01	3.123E 02	2.310E-03	2.818E-03
7.350E 01	1.710E-03	3.123E 02	2.309E-03	2.814E-03
7.483E 01	5.170E-01	3.128E 02	2.274E-03	2.464E-03
7.768E 01	1.045E 00	3.139E 02	2.327E-03	3.241E-03
8.158E 01	1.338E 00	3.152E 02	2.350E-03	3.784E-03
8.439E 01	7.339E-01	3.159E 02	2.334E-03	3.694E-03
8.725E 01	3.076E-01	3.162E 02	2.335E-03	3.862E-03
8.726E 01	0.000	3.162E 02	2.335E-03	3.863E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-92.	(LBF)
MEASURED THRUST	-37.	(LBF)
CALCULATED SPECIFIC IMPULSE	-1011.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-403.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.0460	
MEASURED THRUST COEFFICIENT	-.0184	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3650.	(LBF)
NET THRUST	61.	(LBF)
SPECIFIC IMPULSE	677.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0308	

MOMENTUM AND FORCES

INLET FRICTION DRAG	96.4	(LBF)
INLET MOMENTUM CHANGE	-723.6	(LBF)
COMBUSTOR FRICTION DRAG	193.6	(LBF)
COMBUSTOR STRUT DRAG	-0.77	(LBF)
COMBUSTOR MOMENTUM CHANGE	119.	(LBF)
NOZZLE FRICTION DRAG	26.30	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	513.	(LBF)
NOZZLE PRESSURE INTEGRAL	539.	(LBF)
EXTERNAL FRICTION DRAG	50.40	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1023.	(LBF)
TOTAL EXTERNAL DRAG	-1073.	(LBF)
TOTAL STRUT DRAG	-0.77	(LBF)
CAVITY FORCE	-1442.	(LBF)
CALCULATED LOAD CELL FORCE	-2607.	(LBF)
MEASURED LOAD CELL FORCE	-2552.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2809	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.165	(IN)
NOZZLE SHROUD TRAILING EDGE	73.505	(IN)
NOZZLE PLUG TRAILING EDGE	87.257	(IN)
STRUT LEADING EDGE	56.421	(IN)
STRUT TRAILING EDGE	65.021	(IN)
COMBUSTOR EXIT	65.021	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8659	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2626	
DELTA PT2	0.0961	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4043	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2674	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8910	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9119	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9140	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8833	
ENTHALPY AT P0 - SUPERSONIC	31.11	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	51.19	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0047
EQUIVALENCE RATIO	0.153
COMBUSTOR EFFICIENCY	0.412
TOTAL PRESSURE RATIO	0.2971
COMBUSTOR EFFECTIVENESS	0.5705
INJECTOR DISCHARGE COEFFICIENTS	0.6811, 0.4634,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0137
NOZZLE COEFFICIENT - CT	0.9562
PROCESS EFFICIENCY	1.0937
KINETIC ENERGY EFFICIENCY	1.0277

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.266	B
1C	44.300	
2A	48.741	
2C	46.250	
3A	54.031	
3B	56.216	
4	44.766	

Reading 94

t = 233.14 sec.

The injected fuel
is possibly unburned.

READING = 0094 BLOCK = 143 TIME = 233.142 MACH 5.2 PT = 299.500 TT = 2941.8

RAMJET PERFORMANCE

SUMMARY REPORT

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                  P     T       H           GAMMA  MOLWT SONV  MACH  VEL   S      W/A      W     A/AC   MOMTM   Q     IVAC  PHI  ETAC
WIND TUNNEL             1    0  5
 0.000   299,500 2942   653.1( 779) 1.2954 28.867 2562
 0.000     0.384  512    -5.9( 123) 1.3989 28.866 1111 5.170 5743 1.885 0.08038 17.826 0.8659  3267  7.173 183.3
SPIKE TIP NS            2    0  6
 0.600    14.687 2942   653.1( 779) 1.2953 28.866 2562
 0.600    13.501 2886   636.2( 763) 1.2970 28.866 2539 0.362  920 2.092 0.08038 17.826 0.8659  3504  1.149 196.6
WIND TUNNEL             3    0  0
 0.000   299,500 2942   653.1( 779) 1.2954 28.867 2562
 0.000     0.435  531    -1.5( 128) 1.3987 28.866 1131 5.062 5723 1.885 0.08760 19.427 0.8659  3552  7.791 182.8
SPIKE TIP NS            4    0  0
 0.600    14,687 2942   653.1( 779) 1.2953 28.866 2562
 0.600    13,247 2873   632.4( 759) 1.2974 28.866 2534 0.401 1017 2.092 0.08760 19.427 0.8659  3552  1.384 182.8
INLET THROAT            5    0  4
40.400   122,256 2860   628.4( 755) 1.2979 28.866 2529
40.400    13,615 1682   291.7( 421) 1.3393 28.866 1970 2.084 4105 1.938 0.62062 19.427 0.1121  2870 43.148 147.7
INLET UPNRSK            6    0  3
40.400   122,256 2860   628.4( 755) 1.2979 28.866 2529
40.400    13,396 1675   289.8( 419) 1.3396 28.866 1966 2.094 4116 1.938 0.61486 19.427 0.1234  2909 39.334 149.7
INLET DNNRSK            7    0  4
40.400    80,052 2860   628.4( 755) 1.2979 28.866 2528
40.400    65,992 2735   591.2( 719) 1.3019 28.866 2477 0.551 1364 1.967 0.61486 19.427 0.1234  2909 13.036 149.7
COMBUSTOR           0   8    1 21
40.410   104.128 2805   627.8( 779) 1.3011 27.317 2577
40.410    11.199 1628   275.3( 429) 1.3437 27.317 1996 2.105 4200 2.036 0.67927 19.513 0.1122  2869 44.335 147.0 0.15 0.07
COMBUSTOR           0   9    2 21
41.266    91,771 2723   624.4( 774) 1.3051 26.545 2580
41.266    14,416 1733   319.9( 471) 1.3401 26.545 2086 1.872 3903 2.082 0.68301 19.557 0.1118  2785 41.432 142.4 0.23 0.03
COMBUSTOR           0  10    3 21
41.276    93,969 2692   624.4( 765) 1.3065 26.513 2568
41.276    14,453 1702   320.5( 463) 1.3418 26.513 2069 1.884 3900 2.077 0.68254 19.557 0.1119  2785 41.363 142.4 0.23 0.00
COMBUSTOR           0  11    4 21
41.341    93,496 2686   624.0( 763) 1.3068 26.508 2566
41.341    14,698 1707   323.6( 464) 1.3416 26.508 2073 1.871 3878 2.077 0.68294 19.557 0.1118  2778 41.155 142.0 0.23 0.00
COMBUSTOR           0  12    5 21
41.500    91.755 2683   623.3( 762) 1.3069 26.507 2565
41.500    15,465 1736   332.2( 473) 1.3404 26.507 2089 1.827 3817 2.078 0.68412 19.557 0.1116  2762 40.577 141.2 0.23 0.00
COMBUSTOR           0  13    6 21
42.460    54,754 3248   618.5( 933) 1.2801 27.136 2760
42.460    12,751 2328   323.1( 643) 1.3114 27.139 2365 1.626 3844 2.158 0.67699 19.557 0.1128  2705 40.447 138.3 0.23 0.53
COMBUSTOR           0  14    7 21
44.061    75,121 2729   609.8( 775) 1.3042 26.599 2579
44.061    18.328 1941   365.6( 533) 1.3312 26.599 2198 1.590 3495 2.096 0.65465 19.557 0.1166  2672 35.559 136.6 0.23 0.08
COMBUSTOR           0  15    8 21
44.310    78.157 2649   608.3( 751) 1.3078 26.521 2549
44.310    18,931 1877   369.9( 514) 1.3345 26.521 2167
                                                               1.594 3454 2.085 0.65372 19.557 0.1168  2666 35.093 136.3 0.23 0.01
COMBUSTOR           0  16    9 21
44.776    77,676 2630   605.7( 745) 1.3086 26.509 2541
44.776    20,060 1892   378.0( 519) 1.3341 26.509 2176 1.552 3376 2.084 0.65121 19.557 0.1173  2654 34.163 135.7 0.23 0.00
COMBUSTOR           0  17   10 21
44.800    77.688 2628   605.6( 745) 1.3087 26.508 2540
44.800    20.118 1892   378.4( 519) 1.3341 26.507 2176 1.550 3372 2.083 0.65000 19.557 0.1173  2654 34.100 135.7 0.23 0.00
COMBUSTOR           0  18   11 21
46.260    75.787 2603   597.7( 737) 1.3095 26.507 2528
46.260    18.776 1852   366.6( 507) 1.3356 26.507 2154 1.579 3401 2.082 0.61299 19.557 0.1246  2666 32.396 136.3 0.23 0.00
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READING = 0094 BLOCK = 143 TIME = 233.142 MACH 5.2 PT = 299.500 TT = 2941.8

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.301	75.119	2641	592.3(748)	1.3075	26.565	2542											
47.301	17.819	1862	352.0(509)	1.3346	26.565	2156	1.608	3468	2.087	0.57055	19.557	0.1338	2719	30.746	139.0	0.23	0.05
COMBUSTOR	0	20	13 2														
47.310	75.208	2640	592.3(748)	1.3075	26.564	2542											
47.310	17.782	1859	351.6(509)	1.3348	26.564	2155	1.610	3470	2.086	0.57052	19.557	0.1338	2719	30.766	139.0	0.23	0.05
COMBUSTOR	0	21	14 4														
48.110	69.370	2787	588.5(792)	1.3007	26.732	2597											
48.110	17.857	2015	348.0(553)	1.3270	26.732	2230	1.556	3469	2.105	0.53176	19.557	0.1436	2766	28.669	141.4	0.23	0.19
COMBUSTOR	0	22	15 3														
48.751	69.858	2759	586.1(783)	1.3019	26.709	2586											
48.751	14.771	1898	319.4(518)	1.3317	26.709	2169	1.684	3652	2.102	0.49135	19.557	0.1554	2808	27.889	143.6	0.23	0.17
COMBUSTOR	0	23	16 3														
49.281	72.066	2702	584.4(766)	1.3044	26.655	2564											
49.281	12.275	1757	293.8(477)	1.3379	26.655	2094	1.821	3813	2.095	0.45953	19.557	0.1662	2840	27.231	145.2	0.23	0.13
COMBUSTOR	0	24	17 4														
50.691	65.623	2793	580.7(793)	1.3001	26.764	2597											
50.691	10.200	1782	268.7(484)	1.3358	26.764	2103	1.879	3951	2.109	0.39165	19.557	0.1950	2911	24.048	148.8	0.23	0.22
COMBUSTOR	0	25	18 21														
52.791	76.172	2554	572.7(727)	1.3107	26.316	2515											
52.791	5.150	1297	192.9(349)	1.3631	26.316	1827	2.386	4360	2.090	0.32288	19.672	0.2379	2979	21.875	151.4	0.25	0.04
COMBUSTOR	0	26	19 4														
53.291	65.603	2670	571.7(762)	1.3054	26.439	2560											
53.291	6.467	1508	215.9(408)	1.3501	26.439	1956	2.157	4220	2.113	0.30969	19.672	0.2480	2991	20.310	152.0	0.25	0.13
COMBUSTOR	0	27	20 3														
54.041	61.667	2716	570.4(776)	1.3033	26.491	2578											
54.041	6.210	1546	211.1(419)	1.3476	26.491	1977	2.144	4240	2.121	0.29192	19.672	0.2631	3011	19.234	153.1	0.25	0.17
COMBUSTOR	0	28	21 3														
54.801	58.406	2757	569.1(788)	1.3014	26.538	2592											
54.801	5.950	1577	206.1(427)	1.3455	26.538	1994	2.137	4262	2.129	0.27605	19.672	0.2782	3030	18.283	154.0	0.25	0.21
COMBUSTOR	0	29	22 4														
55.760	63.147	2679	567.5(765)	1.3048	26.462	2563											
55.760	4.909	1423	184.5(383)	1.3546	26.462	1903	2.301	4378	2.116	0.25862	19.672	0.2970	3050	17.596	155.1	0.25	0.15
COMBUSTOR	0	30	23 4														
56.226	47.375	2837	566.9(812)	1.2976	26.630	2621											
56.226	4.403	1593	182.8(431)	1.3438	26.631	1999	2.193	4384	2.151	0.20881	19.672	0.3678	3095	14.226	157.3	0.25	0.28
COMBUSTOR	0	31	24 5														
56.281	65.975	2596	566.8(740)	1.3086	26.378	2530											
56.281	3.246	1214	150.9(325)	1.3674	26.378	1769	2.579	4562	2.105	0.20819	19.672	0.3689	3096	14.760	157.4	0.25	0.09
COMBUSTOR	0	32	25 3														
56.421	66.926	2587	566.6(737)	1.3090	26.370	2527											
56.421	3.170	1197	148.6(320)	1.3685	26.370	1758	2.602	4574	2.103	0.20666	19.672	0.3717	3098	14.689	157.5	0.25	0.08
COMBUSTOR	0	33	26 6														
56.501	51.140	2781	566.5(795)	1.3001	26.572	2601											
56.501	4.104	1499	173.0(404)	1.3493	26.572	1945	2.281	4438	2.140	0.20897	19.672	0.3675	3100	14.411	157.6	0.25	0.24
COMBUSTOR	0	34	27 4														
56.781	55.383	2724	566.2(778)	1.3027	26.514	2580											
56.781	3.800	1405	163.5(378)	1.3551	26.514	1889	2.376	4489	2.130	0.20835	19.672	0.3686	3103	14.534	157.7	0.25	0.19
COMBUSTOR	0	35	28 3														
57.007	53.965	2748	565.9(785)	1.3016	26.539	2588											
57.007	3.883	1437	165.0(387)	1.3531	26.539	1908	2.347	4479	2.134	0.20792	19.672	0.3694	3106	14.472	157.9	0.25	0.21
COMBUSTOR	0	36	29 4														
57.731	48.965	2830	565.0(810)	1.2978	26.629	2618											
57.731	4.150	1551	171.1(419)	1.3460	26.629	1974	2.248	4439	2.147	0.20466	19.672	0.3753	3113	14.120	158.3	0.25	0.28
COMBUSTOR	0	37	30 5														
58.751	61.694	2663	563.9(760)	1.3054	26.457	2556											
58.751	3.337	1284	146.6(344)	1.3626	26.457	1813	2.520	4570	2.116	0.20336	19.672	0.3777	3117	14.442	158.4	0.25	0.15

READING = 0094 BLOCK = 143 TIME = 233.142 MACH 5.2 PT = 299.500 TT = 2941.8

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
60.761	83.069	2502	562.3(711)	1.3127	26.296	2492											
60.761	2.475	1014	120.0(270)	1.3797	26.296	1626	2.892	4704	2.078	0.21043	19.672	0.3650	3108	15.384	158.0	0.25	0.02
COMBUSTOR	0	39	32 5														
62.181	51.643	2805	561.3(803)	1.2988	26.615	2609											
62.181	4.350	1534	170.1(414)	1.3471	26.615	1964	2.252	4424	2.141	0.21614	19.672	0.3553	3101	14.861	157.6	0.25	0.27
COMBUSTOR	0	40	33 5														
64.645	33.340	3239	559.2(935)	1.2777	27.099	2755											
64.645	6.420	2223	232.3(614)	1.3131	27.102	2314	1.748	4045	2.202	0.20487	19.672	0.3749	3090	12.878	157.1	0.25	0.63
COMBUSTOR	0	41	34 3														
65.021	30.160	3282	558.9(948)	1.2753	27.150	2769											
65.021	6.218	2294	239.2(635)	1.3100	27.154	2346	1.705	4000	2.212	0.19047	19.672	0.4032	3088	11.839	157.0	0.25	0.67
COMBUSTOR	REGEN	42	35 3														
65.021	30.160	3529	644.2(1029)	1.2651	27.144	2860											
65.021	6.767	2535	314.6(710)	1.3016	27.153	2458	1.652	4061	2.237	0.19047	19.672	0.4032	3182	12.021	161.8	0.25	0.67
NOZZLE	AE	43	36 2														
87.257	30.160	3282	558.9(943)	1.2753	27.150	2769											
87.257	0.482	1208	-79.6(317)	1.3614	27.154	1735	3.258	5653	2.212	0.03965	19.672	1.9372	3695	3.483	187.9	0.25	0.67
NOZZLE	PO	44	37 2														
87.257	30.160	3282	558.9(943)	1.2753	27.150	2769											
87.257	0.435	1175	-88.6(308)	1.3634	27.154	1713	3.323	5692	2.212	0.03701	19.672	2.0755	3712	3.274	188.7	0.25	0.67
NOZZLE	AE REGEN	45	38 3														
87.257	30.160	3529	644.2(1029)	1.2651	27.144	2860											
87.257	0.520	1348	-40.7(356)	1.3528	27.154	1827	3.204	5854	2.237	0.03965	19.672	1.9371	3837	3.607	195.1	0.25	0.67
NOZZLE	PO REGEN	46	39 3														
87.257	30.160	3529	644.2(1029)	1.2651	27.144	2860											
87.257	0.435	1287	-57.8(339)	1.3565	27.154	1788	3.315	5927	2.237	0.03519	19.672	2.1827	3867	3.241	196.6	0.25	0.67
FICTIVE	COMBUSTR	66	59 0														
65.021	122.256	3665	558.9(1067)	1.2575	27.600	2882											
65.021	0.435	941	-279.9(242)	1.3742	27.611	1526	4.245	6479	2.126	0.05346	19.672	1.4367	4121	5.382	209.5	0.25	1.00
FICTIVE	NOZZLE	67	60 0														
87.257	25.737	3259	550.8(941)	1.2760	27.150	2759											
87.257	0.519	1273	-61.6(335)	1.3574	27.154	1779	3.112	5536	2.221	0.03965	19.672	1.9371	3642	3.411	185.2	0.25	0.67

READING = 0094 BLOCK = 143 TIME = 233.142 MACH 5.2 PT = 299.500 TT = 2941.8

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.115E 00	0.000	-3.598E-01	0.000	0.000	0.000	2.470E-02	2.564E 00	3.723E-03	0.000	0.000
1.836E 01	1.115E 00	0.000	-3.702E 01	0.000	0.000	0.000	1.634E 02	2.564E 00	3.723E-03	0.000	0.000
3.070E 01	1.870E 00	0.000	-1.580E 02	0.000	0.000	0.000	5.053E 02	4.301E 00	6.244E-03	0.000	0.000
3.508E 01	3.176E 00	0.000	-3.215E 02	0.000	0.000	0.000	6.804E 02	7.304E 00	1.060E-02	0.000	0.000
3.516E 01	3.203E 00	4.342E 00	-3.690E 02	0.000	0.000	0.000	6.839E 02	7.367E 00	1.070E-02	9.987E 00	1.450E-02
3.516E 01	3.205E 00	4.328E 00	-3.690E 02	0.000	0.000	0.000	6.842E 02	7.372E 00	1.070E-02	9.954E 00	1.445E-02
3.555E 01	3.340E 00	3.416E 00	-3.762E 02	0.000	0.000	0.000	7.228E 02	7.682E 00	1.115E-02	7.856E 00	1.140E-02
3.583E 01	3.263E 00	2.750E 00	-3.851E 02	-1.902E 02	-1.902E 02	0.000	7.513E 02	7.504E 00	1.089E-02	6.325E 00	9.182E-03
3.606E 01	3.200E 00	3.727E 00	-3.920E 02	-1.927E 02	-1.927E 02	0.000	7.748E 02	7.360E 00	1.068E-02	8.571E 00	1.244E-02
3.648E 01	3.551E 00	5.517E 00	-4.019E 02	-1.975E 02	-1.975E 02	0.000	8.185E 02	8.166E 00	1.186E-02	1.269E 01	1.842E-02
3.701E 01	3.465E 00	7.777E 00	-4.138E 02	-2.504E 02	-2.037E 02	-4.671E 01	8.745E 02	7.969E 00	1.157E-02	1.789E 01	2.597E-02
3.729E 01	4.308E 00	8.975E 00	-4.203E 02	-2.676E 02	-2.071E 02	-6.048E 01	9.046E 02	9.908E 00	1.438E-02	2.064E 01	2.997E-02
3.803E 01	6.525E 00	1.079E 01	-4.602E 02	-3.128E 02	-2.167E 02	-9.613E 01	9.854E 02	1.501E 01	2.179E-02	2.481E 01	3.601E-02
3.831E 01	8.557E 00	1.147E 01	-4.785E 02	-3.303E 02	-2.207E 02	-1.096E 02	1.017E 03	1.968E 01	2.857E-02	2.639E 01	3.831E-02
3.875E 01	1.173E 01	1.173E 01	-5.140E 02	-3.588E 02	-2.282E 02	-1.306E 02	1.066E 03	2.698E 01	3.917E-02	2.698E 01	3.917E-02
3.878E 01	1.196E 01	1.175E 01	-5.164E 02	-3.609E 02	-2.288E 02	-1.321E 02	1.070E 03	2.750E 01	3.992E-02	2.702E 01	3.923E-02
3.901E 01	1.361E 01	1.254E 01	-5.327E 02	-3.764E 02	-2.333E 02	-1.431E 02	1.096E 03	3.131E 01	4.545E-02	2.885E 01	4.188E-02
3.929E 01	1.326E 01	1.351E 01	-5.489E 02	-3.959E 02	-2.395E 02	-1.564E 02	1.128E 03	3.050E 01	4.428E-02	3.108E 01	4.512E-02
3.950E 01	1.300E 01	9.507E 00	-5.580E 02	-4.108E 02	-2.445E 02	-1.663E 02	1.153E 03	2.990E 01	4.341E-02	2.186E 01	3.174E-02
3.978E 01	1.404E 01	4.125E 00	-5.750E 02	-4.314E 02	-2.520E 02	-1.794E 02	1.185E 03	3.229E 01	4.688E-02	9.487E 00	1.377E-02
4.000E 01	1.485E 01	4.463E 00	-5.920E 02	-4.479E 02	-2.584E 02	-1.895E 02	1.211E 03	3.416E 01	4.959E-02	1.026E 01	1.490E-02
4.040E 01	1.724E 01	5.081E 00	-6.230E 02	-4.786E 02	-2.709E 02	-2.077E 02	1.258E 03	3.966E 01	5.757E-02	1.168E 01	1.696E-02
4.041E 01	1.730E 01	5.096E 00	-6.236E 02	-4.794E 02	-2.712E 02	-2.081E 02	1.259E 03	3.979E 01	5.777E-02	1.172E 01	1.701E-02
4.127E 01	2.241E 01	6.417E 00	-6.944E 02	-5.528E 02	-3.012E 02	-2.516E 02	1.360E 03	5.155E 01	7.484E-02	1.476E 01	2.143E-02
4.128E 01	2.247E 01	6.432E 00	-6.952E 02	-5.537E 02	-3.016E 02	-2.521E 02	1.361E 03	5.169E 01	7.504E-02	1.479E 01	2.148E-02
4.134E 01	2.286E 01	6.533E 00	-7.009E 02	-5.599E 02	-3.041E 02	-2.558E 02	1.369E 03	5.258E 01	7.634E-02	1.503E 01	2.181E-02
4.150E 01	2.381E 01	7.118E 00	-7.146E 02	-5.749E 02	-3.103E 02	-2.647E 02	1.388E 03	5.477E 01	7.951E-02	1.637E 01	2.377E-02
4.246E 01	1.485E 01	1.065E 01	-7.585E 02	-6.698E 02	-3.503E 02	-3.195E 02	1.503E 03	3.415E 01	4.958E-02	2.450E 01	3.557E-02
4.406E 01	2.011E 01	1.655E 01	-7.695E 02	-8.400E 02	-4.210E 02	-4.190E 02	1.697E 03	4.625E 01	6.714E-02	3.806E 01	5.525E-02
4.431E 01	2.093E 01	1.694E 01	-7.723E 02	-8.676E 02	-4.321E 02	-4.354E 02	1.727E 03	4.813E 01	6.988E-02	3.895E 01	5.655E-02
4.478E 01	2.246E 01	1.766E 01	-7.783E 02	-9.184E 02	-4.528E 02	-4.656E 02	1.784E 03	5.165E 01	7.499E-02	4.062E 01	5.897E-02
4.480E 01	2.254E 01	1.770E 01	-7.784E 02	-9.210E 02	-4.539E 02	-4.671E 02	1.787E 03	5.183E 01	7.525E-02	4.071E 01	5.910E-02
4.626E 01	1.758E 01	1.998E 01	-7.492E 02	-1.075E 03	-5.163E 02	-5.592E 02	1.966E 03	4.042E 01	5.868E-02	4.594E 01	6.670E-02
4.730E 01	1.404E 01	2.160E 01	-6.854E 02	-1.181E 03	-5.573E 02	-6.241E 02	2.095E 03	3.228E 01	4.687E-02	4.968E 01	7.212E-02
4.731E 01	1.401E 01	2.156E 01	-6.850E 02	-1.182E 03	-5.577E 02	-6.247E 02	2.096E 03	3.221E 01	4.677E-02	4.958E 01	7.198E-02
4.811E 01	1.792E 01	1.779E 01	-6.300E 02	-1.255E 03	-5.874E 02	-6.679E 02	2.196E 03	4.123E 01	5.985E-02	4.092E 01	5.940E-02
4.875E 01	1.477E 01	1.477E 01	-5.811E 02	-1.303E 03	-6.101E 02	-6.931E 02	2.276E 03	3.397E 01	4.932E-02	3.397E 01	4.932E-02
4.928E 01	1.227E 01	1.227E 01	-5.437E 02	-1.336E 03	-6.281E 02	-7.076E 02	2.343E 03	2.823E 01	4.098E-02	2.823E 01	4.098E-02
5.069E 01	1.020E 01	1.020E 01	-4.606E 02	-1.408E 03	-6.726E 02	-7.352E 02	2.520E 03	2.346E 01	3.406E-02	2.346E 01	3.406E-02
5.279E 01	5.150E 00	5.150E 00	-3.761E 02	-1.498E 03	-7.301E 02	-7.680E 02	2.787E 03	1.184E 01	1.720E-02	1.184E 01	1.720E-02
5.329E 01	6.467E 00	6.467E 00	-3.610E 02	-1.517E 03	-7.422E 02	-7.749E 02	2.850E 03	1.487E 01	2.159E-02	1.487E 01	2.159E-02
5.404E 01	6.210E 00	6.210E 00	-3.365E 02	-1.544E 03	-7.593E 02	-7.849E 02	2.946E 03	1.428E 01	2.073E-02	1.428E 01	2.073E-02
5.480E 01	5.950E 00	5.950E 00	-3.129E 02	-1.570E 03	-7.752E 02	-7.946E 02	3.044E 03	1.368E 01	1.987E-02	1.368E 01	1.987E-02
5.576E 01	4.909E 00	4.909E 00	-2.868E 02	-1.600E 03	-7.934E 02	-8.064E 02	3.167E 03	1.129E 01	1.639E-02	1.129E 01	1.639E-02
5.623E 01	4.403E 00	4.403E 00	-2.402E 02	-1.613E 03	-8.008E 02	-8.119E 02	3.209E 03	1.013E 01	1.470E-02	1.013E 01	1.470E-02
5.628E 01	2.150E 00	4.343E 00	-2.390E 02	-1.614E 03	-8.015E 02	-8.125E 02	3.217E 03	4.945E 00	7.179E-03	9.988E 00	1.450E-02
5.642E 01	2.150E 00	4.191E 00	-2.362E 02	-1.618E 03	-8.035E 02	-8.141E 02	3.234E 03	4.945E 00	7.179E-03	9.639E 00	1.399E-02
5.650E 01	4.104E 00	4.104E 00	-2.345E 02	-1.620E 03	-8.045E 02	-8.151E 02	3.245E 03	9.439E 00	1.370E-02	9.439E 00	1.370E-02
5.678E 01	3.800E 00	3.800E 00	-2.294E 02	-1.627E 03	-8.082E 02	-8.185E 02	3.280E 03	8.740E 00	1.269E-02	8.740E 00	1.269E-02
5.701E 01	3.883E 00	3.883E 00	-2.257E 02	-1.632E 03	-8.110E 02	-8.213E 02	3.309E 03	8.931E 00	1.297E-02	8.931E 00	1.297E-02
5.773E 01	4.150E 00	4.150E 00	-2.148E 02	-1.650E 03	-8.192E 02	-8.306E 02	3.402E 03	9.545E 00	1.386E-02	9.545E 00	1.386E-02
5.875E 01	3.337E 00	3.337E 00	-2.061E 02	-1.671E 03	-8.285E 02	-8.426E 02	3.532E 03	7.676E 00	1.114E-02	7.676E 00	1.114E-02
6.076E 01	2.475E 00	2.475E 00	-2.054E 02	-1.703E 03	-8.410E 02	-8.621E 02	3.790E 03	5.692E 00	8.264E-03	5.692E 00	8.264E-03
6.218E 01	4.350E 00	4.350E 00	-2.054E 02	-1.722E 03	-8.474E 02	-8.750E 02	3.972E 03	1.000E 01	1.452E-02	1.000E 01	1.452E-02
6.464E 01	6.420E 00	6.420E 00	-2.054E 02	-1.763E 03	-8.589E 02	-9.041E 02	4.289E 03	1.477E 01	2.144E-02	1.477E 01	2.144E-02
6.502E 01	5.700E 00	6.736E 00	-2.054E 02	-1.770E 03	-8.608E 02	-9.093E 02	4.337E 03	1.311E 01	1.903E-02	1.549E 01	2.249E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.506E 01	5.700E 00	6.769E 00	-2.054E 02	-1.771E 03	-8.609E 02	-9.099E 02	4.342E 03	1.311E 01	1.903E-02	1.557E 01	2.260E-02
6.526E 01	5.485E 00	6.937E 00	-2.054E 02	-1.774E 03	-8.619E 02	-9.124E 02	4.368E 03	1.262E 01	1.831E-02	1.596E 01	2.316E-02
6.692E 01	3.700E 00	3.575E 00	-1.498E 02	-1.801E 03	-8.706E 02	-9.306E 02	4.584E 03	8.510E 00	1.235E-02	8.222E 00	1.194E-02
6.759E 01	2.923E 00	3.795E 00	-7.901E 01	-1.811E 03	-8.744E 02	-9.370E 02	4.665E 03	6.723E 00	9.760E-03	8.728E 00	1.267E-02
6.836E 01	2.030E 00	3.369E 00	3.077E 00	-1.824E 03	-8.788E 02	-9.456E 02	4.760E 03	4.669E 00	6.778E-03	7.748E 00	1.125E-02
6.908E 01	1.841E 00	2.970E 00	6.757E 01	-1.839E 03	-8.827E 02	-9.561E 02	4.848E 03	4.233E 00	6.145E-03	6.831E 00	9.917E-03
6.969E 01	1.680E 00	2.319E 00	1.146E 02	-1.850E 03	-8.857E 02	-9.643E 02	4.922E 03	3.864E 00	5.609E-03	5.333E 00	7.743E-03
7.064E 01	1.315E 00	1.305E 00	1.672E 02	-1.860E 03	-8.900E 02	-9.700E 02	5.036E 03	3.025E 00	4.391E-03	3.001E 00	4.357E-03
7.107E 01	1.150E 00	1.270E 00	1.851E 02	-1.863E 03	-8.917E 02	-9.709E 02	5.088E 03	2.645E 00	3.840E-03	2.921E 00	4.240E-03
7.260E 01	7.493E-01	1.145E 00	2.361E 02	-1.876E 03	-8.971E 02	-9.790E 02	5.273E 03	1.723E 00	2.502E-03	2.633E 00	3.823E-03
7.275E 01	7.100E-01	1.050E 00	2.400E 02	-1.878E 03	-8.976E 02	-9.802E 02	5.290E 03	1.633E 00	2.371E-03	2.415E 00	3.506E-03
7.350E 01	6.307E-01	5.750E-01	2.658E 02	-1.887E 03	-8.997E 02	-9.876E 02	5.374E 03	1.451E 00	2.106E-03	1.322E 00	1.920E-03
7.350E 01	6.302E-01	5.725E-01	2.669E 02	-1.887E 03	-8.998E 02	-9.877E 02	5.375E 03	1.450E 00	2.104E-03	1.317E 00	1.911E-03
7.483E 01	4.900E-01	0.000	2.787E 02	-1.906E 03	-9.030E 02	-1.003E 03	5.427E 03	1.127E 00	1.636E-03	0.000	0.000
7.768E 01	7.650E-01	0.000	3.038E 02	-1.912E 03	-9.085E 02	-1.003E 03	5.525E 03	1.759E 00	2.554E-03	0.000	0.000
8.158E 01	7.550E-01	0.000	3.363E 02	-1.917E 03	-9.134E 02	-1.003E 03	5.630E 03	1.736E 00	2.521E-03	0.000	0.000
8.439E 01	8.450E-01	0.000	3.541E 02	-1.921E 03	-9.176E 02	-1.003E 03	5.684E 03	1.943E 00	2.821E-03	0.000	0.000
8.725E 01	9.750E-01	0.000	3.760E 02	-1.929E 03	-9.254E 02	-1.003E 03	5.707E 03	2.242E 00	3.255E-03	0.000	0.000
8.726E 01	9.753E-01	0.000	3.760E 02	-1.929E 03	-9.254E 02	-1.003E 03	5.707E 03	2.243E 00	3.256E-03	0.000	0.000

READING = 0094 BLOCK = 143 TIME = 233.142 MACH 5.2 PT = 299.500 TT = 2941.8

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.614E 01	9.614E 01	2.603E-03	3.482E-02
4.041E 01	1.425E-01	9.628E 01	2.916E-03	2.915E-02
4.127E 01	1.264E 01	1.089E 02	2.908E-03	3.525E-02
4.128E 01	1.373E-01	1.091E 02	2.757E-03	3.696E-02
4.134E 01	8.772E-01	1.099E 02	2.740E-03	3.756E-02
4.150E 01	2.127E 00	1.121E 02	2.756E-03	3.865E-02
4.246E 01	1.295E 01	1.250E 02	2.808E-03	3.328E-02
4.406E 01	2.211E 01	1.471E 02	3.199E-03	3.636E-02
4.431E 01	3.267E 00	1.504E 02	2.909E-03	4.087E-02
4.478E 01	5.693E 00	1.561E 02	2.873E-03	4.274E-02
4.480E 01	2.884E-01	1.564E 02	2.866E-03	4.290E-02
4.626E 01	1.702E 01	1.734E 02	2.842E-03	4.078E-02
4.730E 01	1.146E 01	1.849E 02	2.784E-03	3.953E-02
4.731E 01	1.007E-01	1.850E 02	2.822E-03	3.898E-02
4.811E 01	8.314E 00	1.933E 02	2.791E-03	3.888E-02
4.875E 01	6.382E 00	1.997E 02	2.837E-03	3.332E-02
4.928E 01	5.139E 00	2.048E 02	2.773E-03	2.968E-02
5.069E 01	1.234E 01	2.171E 02	2.648E-03	2.608E-02
5.279E 01	1.625E 01	2.334E 02	2.668E-03	1.537E-02
5.329E 01	3.424E 00	2.368E 02	2.427E-03	1.907E-02
5.404E 01	4.681E 00	2.415E 02	2.514E-03	1.783E-02
5.480E 01	4.612E 00	2.461E 02	2.535E-03	1.696E-02
5.576E 01	5.601E 00	2.517E 02	2.530E-03	1.455E-02
5.623E 01	1.677E 00	2.534E 02	2.411E-03	1.306E-02
5.628E 01	2.521E-01	2.536E 02	2.527E-03	1.014E-02
5.642E 01	6.274E-01	2.543E 02	2.268E-03	1.062E-02
5.650E 01	3.853E-01	2.546E 02	2.906E-03	1.080E-02
5.678E 01	1.387E 00	2.560E 02	2.466E-03	1.149E-02
5.701E 01	1.019E 00	2.571E 02	2.409E-03	1.182E-02
5.773E 01	3.203E 00	2.603E 02	2.429E-03	1.227E-02
5.875E 01	4.574E 00	2.648E 02	2.472E-03	1.030E-02
6.076E 01	9.129E 00	2.740E 02	2.276E-03	8.656E-03
6.218E 01	6.131E 00	2.801E 02	2.175E-03	1.357E-02
6.464E 01	1.046E 01	2.906E 02	2.595E-03	1.586E-02
6.502E 01	1.644E 00	2.922E 02	2.920E-03	1.389E-02
6.506E 01	1.796E-01	2.924E 02	2.988E-03	1.400E-02
6.526E 01	9.076E-01	2.933E 02	2.986E-03	1.396E-02
6.692E 01	6.889E 00	3.002E 02	2.871E-03	9.855E-03
6.759E 01	2.292E 00	3.025E 02	2.851E-03	9.320E-03
6.836E 01	2.470E 00	3.049E 02	2.805E-03	7.993E-03
6.908E 01	2.100E 00	3.070E 02	2.779E-03	7.353E-03
6.969E 01	1.632E 00	3.087E 02	2.745E-03	6.439E-03
7.064E 01	2.133E 00	3.108E 02	2.669E-03	4.712E-03
7.107E 01	8.326E-01	3.116E 02	2.652E-03	4.435E-03
7.260E 01	2.669E 00	3.143E 02	2.598E-03	3.673E-03
7.275E 01	2.253E-01	3.145E 02	2.584E-03	3.472E-03
7.350E 01	9.599E-01	3.155E 02	2.512E-03	2.595E-03
7.350E 01	1.616E-03	3.155E 02	2.511E-03	2.590E-03
7.483E 01	4.834E-01	3.160E 02	2.469E-03	2.206E-03
7.768E 01	9.924E-01	3.170E 02	2.536E-03	3.090E-03
8.158E 01	1.205E 00	3.182E 02	2.516E-03	3.037E-03
8.439E 01	6.434E-01	3.188E 02	2.525E-03	3.294E-03
8.725E 01	2.888E-01	3.191E 02	2.539E-03	3.656E-03
8.726E 01	0.000	3.191E 02	2.539E-03	3.657E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	53.	(LBF)
MEASURED THRUST	79.	(LBF)
CALCULATED SPECIFIC IMPULSE	365.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	540.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.0268	
MEASURED THRUST COEFFICIENT	0.0398	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	3782.	(LBF)
NET THRUST	193.	(LBF)
SPECIFIC IMPULSE	1316.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0968	

MOMENTUM AND FORCES

INLET FRICTION DRAG	96.1	(LBF)
INLET MOMENTUM CHANGE	-719.1	(LBF)
COMBUSTOR FRICTION DRAG	196.1	(LBF)
COMBUSTOR STRUT DRAG	3.42	(LBF)
COMBUSTOR MOMENTUM CHANGE	218.	(LBF)
NOZZLE FRICTION DRAG	26.91	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	555.	(LBF)
NOZZLE PRESSURE INTEGRAL	581.	(LBF)
EXTERNAL FRICTION DRAG	48.64	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1007.	(LBF)
TOTAL EXTERNAL DRAG	-1056.	(LBF)
TOTAL STRUT DRAG	3.42	(LBF)
CAVITY FORCE	-1432.	(LBF)
CALCULATED LOAD CELL FORCE	-2435.	(LBF)
MEASURED LOAD CELL FORCE	-2409.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2809	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.165	(IN)
NOZZLE SHROUD TRAILING EDGE	73.505	(IN)
NOZZLE PLUG TRAILING EDGE	87.257	(IN)
STRUT LEADING EDGE	56.421	(IN)
STRUT TRAILING EDGE	65.021	(IN)
COMBUSTOR EXIT	65.021	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8659	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2626	
DELTA PT2	0.0957	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4082	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2673	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8923	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9122	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9141	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8829	
ENTHALPY AT P0 - SUPERSONIC	30.11	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	50.58	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0075
EQUIVALENCE RATIO	0.248
COMBUSTOR EFFICIENCY	0.671
TOTAL PRESSURE RATIO	0.2467
COMBUSTOR EFFECTIVENESS	0.6688
INJECTOR DISCHARGE COEFFICIENTS	0.9363, 0.4128,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9856
NOZZLE COEFFICIENT - CT	0.9232
PROCESS EFFICIENCY	0.9633
KINETIC ENERGY EFFICIENCY	0.9691

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.266	B
1C	44.300	
2A	48.741	
2C	46.250	
3A	54.031	
3B	56.216	
4	44.766	

Reading 94

t = 234.04 sec.

The injected fuel
is possibly unburned.

READING = 0094 BLOCK = 144 TIME = 234.042 MACH 5.2 PT = 298.250 TT = 2936.8

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5															
0.000	298.250	2937	651.6(	778)	1.2955	28.867	2560											
0.000	0.382	511	-6.2(	123)	1.3989	28.866	1110	5.170	5737	1.885	0.08017	17.781	0.8659	3255	7.148	183.1		
SPIKE TIP NS		2	0 6															
0.600	14.687	2937	651.6(	778)	1.2954	28.866	2560											
0.600	13.510	2881	634.8(	761)	1.2972	28.866	2537	0.361	915	2.092	0.08017	17.781	0.8659	3502	1.140	197.0		
WIND TUNNEL		3	0 0															
0.000	298.250	2937	651.6(	778)	1.2955	28.867	2560											
0.000	0.436	530	-1.5(	128)	1.3987	28.866	1130	5.057	5717	1.885	0.08769	19.449	0.8659	3552	7.791	182.6		
SPIKE TIP NS		4	0 0															
0.600	14.687	2937	651.6(	778)	1.2954	28.866	2560											
0.600	13.246	2868	630.9(	757)	1.2976	28.866	2532	0.401	1016	2.092	0.08769	19.449	0.8659	3552	1.385	182.6		
INLET THROAT		5	0 5															
40.400	87.069	2826	618.3(	745)	1.2990	28.866	2515											
40.400	17.898	1936	361.5(	491)	1.3289	28.866	2105	1.703	3585	1.958	0.61905	19.449	0.1121	2681	37.721	137.9		
INLET UPNRSK		6	0 2															
40.400	87.069	2826	618.3(	745)	1.2990	28.866	2515											
40.400	17.692	1930	359.9(	489)	1.3291	28.866	2102	1.710	3596	1.958	0.61555	19.449	0.1234	2733	34.397	140.5		
INLET DNNRSK		7	0 4															
40.400	73.271	2826	618.3(	745)	1.2990	28.866	2514											
40.400	56.994	2666	570.8(	698)	1.3041	28.866	2447	0.630	1541	1.970	0.61555	19.449	0.1234	2733	14.746	140.5		
COMBUSTOR	0	8	1 21															
40.410	67.319	2773	618.7(	771)	1.3022	27.238	2567											
40.410	9.916	1742	307.8(	463)	1.3385	27.238	2063	1.912	3944	2.069	0.68020	19.540	0.1122	2680	41.693	137.2	0.16	0.07
COMBUSTOR	0	9	2 21															
41.266	60.582	2687	616.2(	769)	1.3065	26.315	2576											
41.266	10.786	1763	329.7(	484)	1.3391	26.315	2112	1.793	3786	2.123	0.68429	19.594	0.1118	2615	40.264	133.4	0.25	0.03
COMBUSTOR	0	10	3 21															
41.276	62.227	2651	616.2(	758)	1.3082	26.277	2562											
41.276	10.796	1725	329.9(	474)	1.3411	26.277	2092	1.809	3784	2.118	0.68382	19.594	0.1119	2614	40.216	133.4	0.25	0.01
COMBUSTOR	0	11	4 21															
41.341	62.160	2645	615.9(	756)	1.3085	26.272	2559											
41.341	10.862	1724	331.2(	473)	1.3412	26.272	2092	1.804	3774	2.117	0.68421	19.594	0.1118	2609	40.128	133.2	0.25	0.00
COMBUSTOR	0	12	5 21															
41.500	61.865	2642	615.3(	755)	1.3086	26.271	2558											
41.500	11.209	1738	335.6(	477)	1.3406	26.271	2100	1.781	3740	2.117	0.68539	19.594	0.1116	2598	39.839	132.6	0.25	0.00
COMBUSTOR	0	13	6 21															
42.460	34.530	3659	611.6(	1067)	1.2566	27.410	2888											
42.460	10.995	2865	341.9(	810)	1.2872	27.424	2586	1.421	3673	2.226	0.67825	19.594	0.1128	2555	38.717	130.4	0.25	0.87
COMBUSTOR	0	14	7 21															
44.061	55.517	2771	605.7(	794)	1.3022	26.436	2605											
44.061	16.314	2067	384.2(	575)	1.3261	26.436	2271	1.466	3329	2.137	0.65587	19.594	0.1166	2514	33.927	128.3	0.25	0.13
COMBUSTOR	0	15	8 21															
44.310	59.012	2633	604.7(	752)	1.3085	26.295	2552											
44.310	16.527	1933	386.6(	535)	1.3326	26.295	2207	1.497	3304	2.119	0.65494	19.594	0.1168	2506	33.624	127.9	0.25	0.02
COMBUSTOR	0	16	9 21															
44.776	58.476	2606	602.7(	744)	1.3097	26.274	2541											
44.776	16.927	1928	391.5(	534)	1.3331	26.274	2205	1.474	3251	2.117	0.65242	19.594	0.1173	2488	32.960	127.0	0.25	0.00
COMBUSTOR	0	17	10 21															
44.800	58.495	2603	602.6(	743)	1.3098	26.271	2540											
44.800	16.948	1925	391.7(	533)	1.3332	26.271	2204	1.474	3248	2.116	0.65202	19.594	0.1173	2487	32.910	126.9	0.25	0.00
COMBUSTOR	0	18	11 21															
46.260	49.155	2578	595.0(	735)	1.3106	26.271	2529											
46.260	12.407	1841	366.6(	508)	1.3364	26.271	2158	1.566	3380	2.127	0.61414	19.594	0.1246	2454	32.260	125.3	0.25	0.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Θ	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
47.301	30.090	3201	589.0(925)	1.2808	26.958	2750											
47.301	9.170	2443	342.9(684)	1.3070	26.960	2427	1.446	3509	2.211	0.57162	19.594	0.1338	2451	31.171	125.1	0.25	0.53
COMBUSTOR	0	20	13 21														
47.310	39.293	2657	589.0(759)	1.3068	26.371	2558											
47.310	9.148	1865	342.8(514)	1.3344	26.371	2166	1.620	3510	2.151	0.57158	19.594	0.1338	2451	31.177	125.1	0.25	0.08
COMBUSTOR	0	21	14 21														
48.110	39.674	2562	585.0(730)	1.3110	26.286	2520											
48.110	8.690	1765	339.0(485)	1.3393	26.286	2114	1.659	3508	2.141	0.53276	19.594	0.1436	2456	29.045	125.3	0.25	0.01
COMBUSTOR	0	22	15 21														
48.751	36.282	2542	582.6(724)	1.3118	26.273	2512											
48.751	7.197	1706	325.6(468)	1.3420	26.273	2082	1.723	3586	2.145	0.49227	19.594	0.1554	2471	27.436	126.1	0.25	0.00
COMBUSTOR	0	23	16 21														
49.281	35.559	2535	581.2(722)	1.3120	26.271	2509											
49.281	6.962	1696	323.1(465)	1.3425	26.271	2076	1.731	3593	2.146	0.46039	19.594	0.1662	2485	25.709	126.8	0.25	0.00
COMBUSTOR	0	24	17 21														
50.691	33.830	2525	577.9(719)	1.3124	26.271	2504											
50.691	6.412	1674	316.8(458)	1.3435	26.271	2063	1.752	3614	2.148	0.39238	19.594	0.1950	2521	22.039	128.7	0.25	0.00
COMBUSTOR	0	25	18 21														
52.791	29.876	2495	570.1(715)	1.3135	26.048	2501											
52.791	5.250	1621	300.5(447)	1.3462	26.048	2041	1.800	3672	2.169	0.32347	19.708	0.2379	2569	18.461	130.4	0.27	0.01
COMBUSTOR	0	26	19 21														
53.291	25.576	2484	569.2(712)	1.3140	26.039	2496											
53.291	3.667	1530	276.4(420)	1.3508	26.039	1987	1.927	3828	2.180	0.31025	19.708	0.2480	2578	18.455	130.8	0.27	0.00
COMBUSTOR	0	27	20 21														
54.041	25.408	2479	568.0(710)	1.3142	26.038	2494											
54.041	3.658	1529	276.3(419)	1.3509	26.037	1986	1.924	3820	2.180	0.29245	19.708	0.2631	2587	17.363	131.2	0.27	0.00
COMBUSTOR	0	28	21 21														
54.801	25.232	2474	566.7(709)	1.3143	26.037	2492											
54.801	3.650	1528	276.1(419)	1.3510	26.037	1985	1.921	3813	2.180	0.27656	19.708	0.2782	2596	16.390	131.7	0.27	0.00
COMBUSTOR	0	29	22 21														
55.760	19.925	2725	565.2(785)	1.3027	26.299	2590											
55.760	3.553	1795	274.2(496)	1.3358	26.299	2129	1.792	3816	2.221	0.25909	19.708	0.2970	2608	15.364	132.3	0.27	0.19
COMBUSTOR	0	30	23 21														
56.226	22.867	2506	564.5(718)	1.3128	26.076	2504											
56.226	3.506	1573	277.3(432)	1.3483	26.076	2011	1.885	3790	2.191	0.20920	19.708	0.3678	2652	12.323	134.6	0.27	0.03
COMBUSTOR	0	31	24 21														
56.281	22.141	2473	564.4(708)	1.3143	26.043	2491											
56.281	2.925	1491	263.6(408)	1.3529	26.043	1962	1.977	3880	2.189	0.20857	19.708	0.3689	2653	12.575	134.6	0.27	0.00
COMBUSTOR	0	32	25 21														
56.421	22.226	2467	564.2(707)	1.3145	26.038	2489											
56.421	2.918	1485	263.4(407)	1.3532	26.038	1959	1.981	3880	2.189	0.20703	19.708	0.3717	2655	12.484	134.7	0.27	0.00
COMBUSTOR	0	33	26 21														
56.501	23.828	2467	564.1(706)	1.3145	26.038	2489											
56.501	3.478	1526	275.4(419)	1.3510	26.038	1984	1.915	3801	2.183	0.20935	19.708	0.3675	2656	12.366	134.7	0.27	0.00
COMBUSTOR	0	34	27 21														
56.781	23.935	2465	563.8(706)	1.3146	26.037	2488											
56.781	3.450	1520	273.9(417)	1.3514	26.037	1981	1.923	3809	2.183	0.20873	19.708	0.3686	2659	12.355	134.9	0.27	0.00
COMBUSTOR	0	35	28 21														
57.007	23.995	2464	563.5(706)	1.3146	26.037	2487											
57.007	3.426	1516	272.6(416)	1.3516	26.037	1978	1.929	3815	2.182	0.20830	19.708	0.3694	2661	12.350	135.0	0.27	0.00
COMBUSTOR	0	36	29 21														
57.731	21.593	2572	562.7(738)	1.3096	26.149	2531											
57.731	3.350	1625	269.8(446)	1.3450	26.149	2038	1.878	3828	2.201	0.20504	19.708	0.3753	2667	12.199	135.3	0.27	0.08
COMBUSTOR	0	37	30 21														
58.751	22.507	2475	561.7(709)	1.3141	26.054	2491											
58.751	2.887	1481	257.4(405)	1.3533	26.054	1956	1.995	3902	2.188	0.20373	19.708	0.3777	2670	12.355	135.5	0.27	0.01

READING = 0094 BLOCK = 144 TIME = 234.042 MACH 5.2 PT = 298.250 TT = 2936.8

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
60.761	23.454	2456	560.1(703)	1.3149	26.040	2483											
60.761	3.037	1472	259.1(403)	1.3539	26.040	1951	1.989	3881	2.183	0.21082	19.708	0.3650	2661	12.714	135.0	0.27	0.00
COMBUSTOR	0	39	32 21														
62.181	24.710	2450	558.9(701)	1.3151	26.038	2481											
62.181	3.450	1498	267.2(410)	1.3526	26.038	1967	1.943	3821	2.178	0.21653	19.708	0.3553	2654	12.857	134.7	0.27	0.00
COMBUSTOR	0	40	33 21														
64.645	25.525	2443	556.8(699)	1.3153	26.037	2477											
64.645	5.580	1676	320.1(463)	1.3437	26.037	2074	1.660	3441	2.175	0.20525	19.708	0.3749	2644	10.976	134.1	0.27	0.00
COMBUSTOR	0	41	34 21														
65.021	23.544	2457	556.4(703)	1.3147	26.052	2483											
65.021	5.715	1732	332.1(480)	1.3410	26.052	2105	1.591	3350	2.183	0.19081	19.708	0.4032	2642	9.934	134.1	0.27	0.01
COMBUSTOR	REGEN	42	35 4														
65.021	23.544	2735	646.1(792)	1.3056	26.052	2611											
65.021	6.925	2036	424.7(572)	1.3292	26.052	2273	1.465	3329	2.217	0.19081	19.708	0.4032	2754	9.871	139.7	0.27	0.01
NOZZLE AE		43	36 3														
87.257	23.544	2457	556.4(702)	1.3147	26.052	2483											
87.257	0.414	857	81.8(229)	1.3882	26.052	1507	3.234	4873	2.183	0.03972	19.708	1.9371	3191	3.008	161.9	0.27	0.01
NOZZLE PO		44	37 3														
87.257	23.544	2457	556.4(702)	1.3147	26.052	2483											
87.257	0.436	869	85.1(233)	1.3876	26.052	1517	3.201	4856	2.183	0.04104	19.708	1.8750	3184	3.097	161.6	0.27	0.01
NOZZLE AE	REGEN	45	38 3														
87.257	23.544	2735	646.1(792)	1.3056	26.052	2611											
87.257	0.460	1001	121.2(269)	1.3807	26.052	1624	3.156	5125	2.217	0.03972	19.708	1.9371	3368	3.164	170.9	0.27	0.01
NOZZLE PO	REGEN	46	39 3														
87.257	23.544	2735	646.1(792)	1.3056	26.052	2611											
87.257	0.436	986	117.1(265)	1.3815	26.052	1612	3.192	5145	2.217	0.03833	19.708	2.0073	3376	3.065	171.3	0.27	0.01
FICTIVE COMBUSTR		66	59 0														
65.021	87.069	3745	556.4(1100)	1.2524	27.476	2913											
65.021	0.436	1067	-283.6(277)	1.3659	27.492	1623	3.994	6483	2.168	0.04710	19.708	1.6336	4154	4.746	210.8	0.27	1.00
FICTIVE NOZZLE		67	60 0														
87.257	36.975	2415	543.2(690)	1.3161	26.052	2463											
87.257	0.322	689	36.3(184)	1.3952	26.052	1355	3.717	5036	2.143	0.03972	19.708	1.9371	3245	3.109	164.7	0.27	0.01

READING = 0094 BLOCK = 144 TIME = 234.042 MACH 5.2 PT = 298.250 TT = 2936.8

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.110E 00	0.000	-3.598E-01	0.000	0.000	0.000	2.470E-02	2.548E 00	3.722E-03	0.000	0.000
1.836E 01	1.110E 00	0.000	-3.685E 01	0.000	0.000	0.000	1.634E 02	2.548E 00	3.722E-03	0.000	0.000
3.070E 01	2.750E 00	0.000	-1.933E 02	0.000	0.000	0.000	5.053E 02	6.313E 00	9.220E-03	0.000	0.000
3.508E 01	4.749E 00	0.000	-4.363E 02	0.000	0.000	0.000	6.804E 02	1.090E 01	1.592E-02	0.000	0.000
3.516E 01	4.757E 00	4.291E 00	-4.860E 02	0.000	0.000	0.000	6.839E 02	1.092E 01	1.595E-02	9.850E 00	1.439E-02
3.516E 01	4.757E 00	4.310E 00	-4.862E 02	0.000	0.000	0.000	6.842E 02	1.092E 01	1.595E-02	9.894E 00	1.445E-02
3.555E 01	4.795E 00	5.547E 00	-4.999E 02	0.000	0.000	0.000	7.228E 02	1.101E 01	1.608E-02	1.274E 01	1.860E-02
3.583E 01	4.806E 00	6.450E 00	-5.081E 02	-3.101E 02	-3.101E 02	0.000	7.513E 02	1.103E 01	1.611E-02	1.481E 01	2.163E-02
3.606E 01	4.815E 00	6.881E 00	-5.140E 02	-3.142E 02	-3.142E 02	0.000	7.748E 02	1.105E 01	1.614E-02	1.580E 01	2.307E-02
3.648E 01	5.820E 00	7.673E 00	-5.296E 02	-3.219E 02	-3.219E 02	0.000	8.185E 02	1.336E 01	1.951E-02	1.761E 01	2.573E-02
3.701E 01	5.257E 00	8.671E 00	-5.578E 02	-3.859E 02	-3.321E 02	-5.383E 01	8.745E 02	1.207E 01	1.763E-02	1.991E 01	2.907E-02
3.729E 01	6.183E 00	9.200E 00	-5.742E 02	-4.074E 02	-3.377E 02	-6.969E 01	9.046E 02	1.419E 01	2.073E-02	2.112E 01	3.085E-02
3.803E 01	8.617E 00	1.111E 01	-6.432E 02	-4.639E 02	-3.532E 02	-1.107E 02	9.854E 02	1.978E 01	2.889E-02	2.551E 01	3.725E-02
3.831E 01	9.598E 00	1.184E 01	-6.686E 02	-4.856E 02	-3.594E 02	-1.262E 02	1.017E 03	2.203E 01	3.218E-02	2.718E 01	3.969E-02
3.875E 01	1.113E 01	1.136E 01	-7.054E 02	-5.196E 02	-3.692E 02	-1.504E 02	1.066E 03	2.555E 01	3.732E-02	2.608E 01	3.808E-02
3.878E 01	1.124E 01	1.132E 01	-7.077E 02	-5.220E 02	-3.699E 02	-1.521E 02	1.070E 03	2.580E 01	3.768E-02	2.600E 01	3.797E-02
3.901E 01	1.204E 01	1.226E 01	-7.215E 02	-5.398E 02	-3.752E 02	-1.647E 02	1.096E 03	2.764E 01	4.036E-02	2.815E 01	4.112E-02
3.929E 01	1.224E 01	1.341E 01	-7.344E 02	-5.617E 02	-3.817E 02	-1.800E 02	1.128E 03	2.810E 01	4.103E-02	3.079E 01	4.497E-02
3.950E 01	1.239E 01	9.545E 00	-7.421E 02	-5.780E 02	-3.866E 02	-1.914E 02	1.153E 03	2.844E 01	4.153E-02	2.191E 01	3.200E-02
3.978E 01	1.357E 01	4.350E 00	-7.578E 02	-5.998E 02	-3.934E 02	-2.064E 02	1.185E 03	3.115E 01	4.549E-02	9.987E 00	1.459E-02
4.000E 01	1.449E 01	4.512E 00	-7.739E 02	-6.167E 02	-3.987E 02	-2.180E 02	1.211E 03	3.326E 01	4.858E-02	1.036E 01	1.513E-02
4.040E 01	1.500E 01	4.808E 00	-8.017E 02	-6.475E 02	-4.089E 02	-2.385E 02	1.258E 03	3.445E 01	5.031E-02	1.104E 01	1.612E-02
4.041E 01	1.502E 01	4.816E 00	-8.022E 02	-6.482E 02	-4.092E 02	-2.390E 02	1.259E 03	3.448E 01	5.035E-02	1.106E 01	1.615E-02
4.127E 01	1.612E 01	5.449E 00	-8.547E 02	-7.158E 02	-4.338E 02	-2.820E 02	1.360E 03	3.701E 01	5.406E-02	1.251E 01	1.827E-02
4.128E 01	1.614E 01	5.457E 00	-8.553E 02	-7.167E 02	-4.342E 02	-2.825E 02	1.361E 03	3.704E 01	5.410E-02	1.253E 01	1.830E-02
4.134E 01	1.622E 01	5.505E 00	-8.590E 02	-7.219E 02	-4.362E 02	-2.857E 02	1.369E 03	3.724E 01	5.438E-02	1.264E 01	1.846E-02
4.150E 01	1.642E 01	5.993E 00	-8.679E 02	-7.347E 02	-4.413E 02	-2.933E 02	1.388E 03	3.771E 01	5.507E-02	1.376E 01	2.009E-02
4.246E 01	1.305E 01	8.941E 00	-8.981E 02	-8.071E 02	-4.745E 02	-3.326E 02	1.503E 03	2.996E 01	4.376E-02	2.053E 01	2.998E-02
4.406E 01	1.877E 01	1.386E 01	-9.150E 02	-9.222E 02	-5.310E 02	-3.912E 02	1.697E 03	4.309E 01	6.294E-02	3.181E 01	4.646E-02
4.431E 01	1.966E 01	1.339E 01	-9.197E 02	-9.410E 02	-5.395E 02	-4.016E 02	1.727E 03	4.514E 01	6.592E-02	3.075E 01	4.491E-02
4.478E 01	2.133E 01	1.253E 01	-9.321E 02	-9.808E 02	-5.552E 02	-4.256E 02	1.784E 03	4.896E 01	7.151E-02	2.876E 01	4.201E-02
4.480E 01	2.141E 01	1.248E 01	-9.326E 02	-9.830E 02	-5.560E 02	-4.271E 02	1.787E 03	4.916E 01	7.179E-02	2.866E 01	4.186E-02
4.626E 01	1.504E 01	9.771E 00	-9.477E 02	-1.132E 03	-6.032E 02	-5.291E 02	1.966E 03	3.454E 01	5.044E-02	2.243E 01	3.276E-02
4.730E 01	1.050E 01	7.837E 00	-9.383E 02	-1.248E 03	-6.349E 02	-6.132E 02	2.095E 03	2.411E 01	3.521E-02	1.799E 01	2.628E-02
4.731E 01	1.046E 01	7.833E 00	-9.384E 02	-1.249E 03	-6.352E 02	-6.140E 02	2.096E 03	2.402E 01	3.508E-02	1.798E 01	2.626E-02
4.811E 01	9.900E 00	7.480E 00	-9.234E 02	-1.327E 03	-6.585E 02	-6.684E 02	2.196E 03	2.273E 01	3.319E-02	1.717E 01	2.508E-02
4.875E 01	7.197E 00	7.197E 00	-9.019E 02	-1.374E 03	-6.767E 02	-6.974E 02	2.276E 03	1.652E 01	2.413E-02	1.652E 01	2.413E-02
4.928E 01	6.962E 00	6.962E 00	-8.823E 02	-1.403E 03	-6.912E 02	-7.117E 02	2.343E 03	1.598E 01	2.334E-02	1.598E 01	2.334E-02
5.069E 01	6.412E 00	6.412E 00	-8.329E 02	-1.467E 03	-7.281E 02	-7.386E 02	2.520E 03	1.472E 01	2.150E-02	1.472E 01	2.150E-02
5.279E 01	5.250E 00	5.250E 00	-7.686E 02	-1.550E 03	-7.781E 02	-7.716E 02	2.787E 03	1.205E 01	1.760E-02	1.205E 01	1.760E-02
5.329E 01	3.667E 00	3.667E 00	-7.571E 02	-1.567E 03	-7.891E 02	-7.774E 02	2.850E 03	8.418E 00	1.229E-02	8.418E 00	1.229E-02
5.404E 01	3.658E 00	3.658E 00	-7.429E 02	-1.591E 03	-8.050E 02	-7.860E 02	2.946E 03	8.399E 00	1.227E-02	8.399E 00	1.227E-02
5.480E 01	3.650E 00	3.650E 00	-7.287E 02	-1.616E 03	-8.204E 02	-7.953E 02	3.044E 03	8.380E 00	1.224E-02	8.380E 00	1.224E-02
5.576E 01	3.553E 00	3.553E 00	-7.114E 02	-1.646E 03	-8.387E 02	-8.077E 02	3.167E 03	8.157E 00	1.191E-02	8.157E 00	1.191E-02
5.623E 01	3.506E 00	3.506E 00	-6.651E 02	-1.660E 03	-8.459E 02	-8.141E 02	3.209E 03	8.049E 00	1.176E-02	8.049E 00	1.176E-02
5.628E 01	2.350E 00	3.501E 00	-6.641E 02	-1.661E 03	-8.465E 02	-8.149E 02	3.217E 03	5.395E 00	7.879E-03	8.036E 00	1.174E-02
5.642E 01	2.350E 00	3.486E 00	-6.619E 02	-1.665E 03	-8.482E 02	-8.168E 02	3.234E 03	5.395E 00	7.879E-03	8.004E 00	1.169E-02
5.650E 01	3.478E 00	3.478E 00	-6.605E 02	-1.667E 03	-8.492E 02	-8.179E 02	3.245E 03	7.985E 00	1.166E-02	7.985E 00	1.166E-02
5.678E 01	3.450E 00	3.450E 00	-6.559E 02	-1.674E 03	-8.525E 02	-8.215E 02	3.280E 03	7.920E 00	1.157E-02	7.920E 00	1.157E-02
5.701E 01	3.426E 00	3.426E 00	-6.526E 02	-1.679E 03	-8.550E 02	-8.242E 02	3.309E 03	7.866E 00	1.149E-02	7.866E 00	1.149E-02
5.773E 01	3.350E 00	3.350E 00	-6.434E 02	-1.695E 03	-8.626E 02	-8.323E 02	3.402E 03	7.691E 00	1.123E-02	7.691E 00	1.123E-02
5.875E 01	2.887E 00	2.887E 00	-6.362E 02	-1.714E 03	-8.720E 02	-8.424E 02	3.532E 03	6.629E 00	9.681E-03	6.629E 00	9.681E-03
6.076E 01	3.037E 00	3.037E 00	-6.355E 02	-1.747E 03	-8.869E 02	-8.600E 02	3.790E 03	6.973E 00	1.018E-02	6.973E 00	1.018E-02
6.218E 01	3.450E 00	3.450E 00	-6.355E 02	-1.769E 03	-8.964E 02	-8.726E 02	3.972E 03	7.920E 00	1.157E-02	7.920E 00	1.157E-02
6.464E 01	5.580E 00	5.580E 00	-6.355E 02	-1.813E 03	-9.156E 02	-8.972E 02	4.289E 03	1.281E 01	1.871E-02	1.281E 01	1.871E-02
6.502E 01	5.525E 00	5.905E 00	-6.355E 02	-1.820E 03	-9.189E 02	-9.012E 02	4.337E 03	1.268E 01	1.852E-02	1.356E 01	1.980E-02

READING = 0094 BLOCK = 144 TIME = 234.042 MACH 5.2 PT = 298.250 TT = 2936.8

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.506E 01	5.525E 00	5.940E 00	-6.355E 02	-1.821E 03	-9.192E 02	-9.016E 02	4.342E 03	1.268E 01	1.852E-02	1.364E 01	1.991E-02
6.526E 01	5.286E 00	6.112E 00	-6.355E 02	-1.825E 03	-9.210E 02	-9.037E 02	4.368E 03	1.213E 01	1.772E-02	1.403E 01	2.049E-02
6.692E 01	3.300E 00	2.875E 00	-5.863E 02	-1.859E 03	-9.362E 02	-9.225E 02	4.584E 03	7.576E 00	1.106E-02	6.600E 00	9.640E-03
6.759E 01	2.797E 00	2.813E 00	-5.267E 02	-1.874E 03	-9.427E 02	-9.316E 02	4.665E 03	6.422E 00	9.380E-03	6.457E 00	9.430E-03
6.836E 01	2.220E 00	2.651E 00	-4.541E 02	-1.895E 03	-9.503E 02	-9.445E 02	4.760E 03	5.097E 00	7.443E-03	6.086E 00	8.889E-03
6.908E 01	2.039E 00	2.500E 00	-3.933E 02	-1.917E 03	-9.570E 02	-9.597E 02	4.848E 03	4.680E 00	6.835E-03	5.739E 00	8.382E-03
6.969E 01	1.885E 00	2.031E 00	-3.474E 02	-1.934E 03	-9.622E 02	-9.719E 02	4.922E 03	4.328E 00	6.320E-03	4.662E 00	6.809E-03
7.064E 01	1.482E 00	1.300E 00	-2.934E 02	-1.952E 03	-9.697E 02	-9.822E 02	5.036E 03	3.403E 00	4.970E-03	2.984E 00	4.359E-03
7.107E 01	1.300E 00	1.477E 00	-2.736E 02	-1.958E 03	-9.728E 02	-9.848E 02	5.088E 03	2.984E 00	4.359E-03	3.390E 00	4.951E-03
7.260E 01	9.949E-01	2.105E 00	-2.051E 02	-1.985E 03	-9.825E 02	-1.002E 03	5.273E 03	2.284E 00	3.336E-03	4.833E 00	7.058E-03
7.275E 01	9.650E-01	1.924E 00	-1.990E 02	-1.988E 03	-9.833E 02	-1.005E 03	5.290E 03	2.215E 00	3.236E-03	4.417E 00	6.451E-03
7.350E 01	8.658E-01	1.020E 00	-1.560E 02	-2.007E 03	-9.870E 02	-1.020E 03	5.374E 03	1.988E 00	2.903E-03	2.342E 00	3.420E-03
7.350E 01	8.653E-01	1.015E 00	-1.541E 02	-2.007E 03	-9.870E 02	-1.020E 03	5.375E 03	1.987E 00	2.901E-03	2.331E 00	3.404E-03
7.483E 01	6.900E-01	0.000	-1.376E 02	-2.044E 03	-9.927E 02	-1.052E 03	5.427E 03	1.584E 00	2.313E-03	0.000	0.000
7.768E 01	9.850E-01	0.000	-1.042E 02	-2.054E 03	-1.002E 03	-1.052E 03	5.525E 03	2.261E 00	3.303E-03	0.000	0.000
8.158E 01	1.010E 00	0.000	-6.152E 01	-2.061E 03	-1.010E 03	-1.052E 03	5.630E 03	2.319E 00	3.386E-03	0.000	0.000
8.439E 01	1.085E 00	0.000	-3.825E 01	-2.068E 03	-1.016E 03	-1.052E 03	5.684E 03	2.491E 00	3.638E-03	0.000	0.000
8.725E 01	1.340E 00	0.000	-8.988E 00	-2.079E 03	-1.027E 03	-1.052E 03	5.707E 03	3.076E 00	4.493E-03	0.000	0.000
8.726E 01	1.341E 00	0.000	-8.979E 00	-2.079E 03	-1.027E 03	-1.052E 03	5.707E 03	3.078E 00	4.495E-03	0.000	0.000

READING = 0094 BLOCK = 144 TIME = 234.042 MACH 5.2 PT = 298.250 TT = 2936.8

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.064E 02	1.064E 02	2.841E-03	3.869E-02
4.041E 01	1.407E-01	1.065E 02	3.158E-03	2.494E-02
4.127E 01	1.310E 01	1.196E 02	3.156E-03	2.706E-02
4.128E 01	1.444E-01	1.198E 02	2.976E-03	2.861E-02
4.134E 01	9.208E-01	1.207E 02	2.951E-03	2.893E-02
4.150E 01	2.237E 00	1.229E 02	2.956E-03	2.950E-02
4.246E 01	1.345E 01	1.364E 02	3.005E-03	2.862E-02
4.406E 01	2.318E 01	1.596E 02	3.585E-03	2.948E-02
4.431E 01	3.433E 00	1.630E 02	3.127E-03	3.494E-02
4.478E 01	5.849E 00	1.689E 02	3.051E-03	3.621E-02
4.480E 01	2.953E-01	1.692E 02	3.038E-03	3.639E-02
4.626E 01	1.782E 01	1.870E 02	3.059E-03	2.911E-02
4.730E 01	1.256E 01	1.995E 02	3.076E-03	2.336E-02
4.731E 01	1.200E-01	1.997E 02	3.515E-03	2.030E-02
4.811E 01	9.992E 00	2.096E 02	3.143E-03	2.166E-02
4.875E 01	7.044E 00	2.167E 02	3.077E-03	1.912E-02
4.928E 01	5.409E 00	2.221E 02	3.046E-03	1.852E-02
5.069E 01	1.278E 01	2.349E 02	2.986E-03	1.699E-02
5.279E 01	1.610E 01	2.510E 02	2.986E-03	1.410E-02
5.329E 01	3.500E 00	2.545E 02	2.966E-03	1.101E-02
5.804E 01	5.062E 00	2.595E 02	2.934E-03	1.090E-02
5.480E 01	4.802E 00	2.643E 02	2.910E-03	1.077E-02
5.576E 01	5.673E 00	2.700E 02	2.887E-03	1.044E-02
5.623E 01	1.745E 00	2.718E 02	3.022E-03	9.271E-03
5.628E 01	2.576E-01	2.720E 02	2.853E-03	8.610E-03
5.642E 01	6.315E-01	2.727E 02	2.819E-03	8.659E-03
5.650E 01	3.575E-01	2.730E 02	2.803E-03	9.800E-03
5.678E 01	1.233E 00	2.742E 02	2.789E-03	9.753E-03
5.701E 01	9.920E-01	2.752E 02	2.781E-03	9.703E-03
5.773E 01	3.155E 00	2.784E 02	2.768E-03	9.524E-03
5.875E 01	4.520E 00	2.829E 02	2.865E-03	8.319E-03
6.076E 01	9.104E 00	2.920E 02	2.768E-03	8.848E-03
6.218E 01	6.419E 00	2.984E 02	2.743E-03	9.727E-03
6.464E 01	1.044E 01	3.089E 02	2.798E-03	1.313E-02
6.502E 01	1.423E 00	3.103E 02	2.845E-03	1.305E-02
6.506E 01	1.442E-01	3.104E 02	2.875E-03	1.311E-02
6.526E 01	7.154E-01	3.112E 02	2.872E-03	1.306E-02
6.692E 01	5.409E 00	3.166E 02	2.726E-03	8.883E-03
6.759E 01	1.788E 00	3.184E 02	2.700E-03	8.315E-03
6.836E 01	1.958E 00	3.203E 02	2.666E-03	7.539E-03
6.908E 01	1.721E 00	3.220E 02	2.646E-03	7.167E-03
6.969E 01	1.371E 00	3.234E 02	2.618E-03	6.470E-03
7.064E 01	1.866E 00	3.253E 02	2.553E-03	5.085E-03
7.107E 01	7.699E-01	3.260E 02	2.549E-03	5.071E-03
7.260E 01	2.804E 00	3.288E 02	2.560E-03	5.462E-03
7.275E 01	2.647E-01	3.291E 02	2.546E-03	5.194E-03
7.350E 01	1.130E 00	3.302E 02	2.464E-03	3.818E-03
7.350E 01	1.898E-03	3.302E 02	2.463E-03	3.810E-03
7.483E 01	5.535E-01	3.308E 02	2.402E-03	3.034E-03
7.768E 01	1.060E 00	3.319E 02	2.454E-03	3.910E-03
8.158E 01	1.260E 00	3.331E 02	2.443E-03	3.953E-03
8.439E 01	6.705E-01	3.338E 02	2.444E-03	4.142E-03
8.725E 01	3.016E-01	3.341E 02	2.473E-03	4.797E-03
8.726E 01	0.000	3.341E 02	2.472E-03	4.799E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-344.	(LBF)
MEASURED THRUST	52.	(LBF)
CALCULATED SPECIFIC IMPULSE	-2131.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	324.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.1725	
MEASURED THRUST COEFFICIENT	0.0262	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3425.	(LBF)
NET THRUST	-164.	(LBF)
SPECIFIC IMPULSE	-1018.	(LBF-SEC/LBM)
THRUST COEFFICIENT	-.0824	

MOMENTUM AND FORCES

INLET FRICTION DRAG	106.4	(LBF)
INLET MOMENTUM CHANGE	-908.1	(LBF)
COMBUSTOR FRICTION DRAG	203.9	(LBF)
COMBUSTOR STRUT DRAG	1.05	(LBF)
COMBUSTOR MOMENTUM CHANGE	-39.	(LBF)
NOZZLE FRICTION DRAG	23.79	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	603.	(LBF)
NOZZLE PRESSURE INTEGRAL	627.	(LBF)
EXTERNAL FRICTION DRAG	43.93	(LBF)
EXTERNAL PRESSURE INTEGRAL	-878.	(LBF)
TOTAL EXTERNAL DRAG	-922.	(LBF)
TOTAL STRUT DRAG	1.05	(LBF)
CAVITY FORCE	-1396.	(LBF)
CALCULATED LOAD CELL FORCE	-2662.	(LBF)
MEASURED LOAD CELL FORCE	-2266.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2809	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.165	(IN)
NOZZLE SHROUD TRAILING EDGE	73.505	(IN)
NOZZLE PLUG TRAILING EDGE	87.257	(IN)
STRUT LEADING EDGE	56.421	(IN)
STRUT TRAILING EDGE	65.021	(IN)
COMBUSTOR EXIT	65.021	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8659	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2402	
DELTA PT2	0.1108	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2919	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2457	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8751	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9055	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.8796	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8662	
ENTHALPY AT PO - SUPERSONIC	43.84	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	52.55	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0083
EQUIVALENCE RATIO	0.272
COMBUSTOR EFFICIENCY	0.011
TOTAL PRESSURE RATIO	0.2704
COMBUSTOR EFFECTIVENESS	0.3355
INJECTOR DISCHARGE COEFFICIENTS	0.8892, 0.4434,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0170
NOZZLE COEFFICIENT - CT	0.9513
PROCESS EFFICIENCY	1.1112
KINETIC ENERGY EFFICIENCY	1.0335

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.266	B
1C	44.300	
2A	48.741	
2C	46.250	
3A	54.031	
3B	56.216	
4	44.766	

Reading 95

t = 129.55 sec.

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READING = 0095  BLOCK =  32  TIME = 129,549  MACH  5.2  PT = 297.000  TT = 2432.6                                                    PAGE  1
                                                          RAMJET PERFORMANCE

                                                        S U M M A R Y   R E P O R T

               P        T       H           GAMMA  MOLWT SONV  MACH  VEL    S      W/A      W      A/AC    MOMTM    G     IVAC  PHI  ETAC
WIND TUNNEL             1    0  4
 0.000    297.000 2433  502.0( 630) 1.3113 28.919 2342
 0.000      0.406  414  -29.6(  99) 1.3989 28.919  998 5.170 5158 1.829 0.09466 20.998 0.8661   3456  7.587 164.6
SPIKE TIP NB            2    0  4
 0.600     13.962 2433  502.0( 630) 1.3113 28.919 2342
 0.600     12.490 2369  483.6( 612) 1.3134 28.919 2313 0.415  959 2.039 0.09466 20.998 0.8661   3397  1.411 161.6
WIND TUNNEL             3    0  0
 0.000    297.000 2433  502.0( 630) 1.3113 28.919 2342
 0.000      0.393  410  -30.8(  99) 1.3989 28.919  993 5.198 5162 1.829 0.09262 20.545 0.8661   3383  7.430 164.7
SPIKE TIP NB            4    0  0
 0.600     13.962 2433  502.0( 630) 1.3113 28.919 2342
 0.600     12.562 2372  484.5( 613) 1.3133 28.919 2314 0.404  935 2.039 0.09262 20.545 0.8661   3383  1.345 164.7
INLET THROAT            5    0  5
40.400    108.358 2392  490.2( 619) 1.3126 28.919 2323
40.400     16.736 1505  243.7( 373) 1.3480 28.919 1868 1.880 3512 1.893 0.73075 20.545 0.1122   2723 39.021 132.6
INLET UPNRSK            6    0  2
40.400    108.358 2392  490.2( 619) 1.3126 28.919 2323
40.400     13.500 1424  222.1( 351) 1.3526 28.919 1819 2.013 3663 1.893 0.64998 20.545 0.1234   2766 36.997 134.6
INLET DNNRSK            7    0  4
40.400     75.589 2392  490.2( 619) 1.3126 28.919 2323
40.400     61.526 2277  457.2( 586) 1.3165 28.919 2270 0.566 1285 1.918 0.64998 20.545 0.1234   2766 12.984 134.6
COMBUSTOR            0  8    1  5
40.410    108.214 2392  490.2( 618) 1.3126 28.919 2323
40.410     16.081 1490  239.8( 369) 1.3488 28.919 1859 1.904 3540 1.893 0.71489 20.545 0.1122   2723 39.329 132.5
COMBUSTOR            0  9    2  4
41.274     92.095 2383  487.7( 616) 1.3129 28.919 2319
41.274     18.748 1609  271.7( 401) 1.3425 28.919 1927 1.706 3288 1.903 0.71672 20.545 0.1119   2637 36.623 128.3
COMBUSTOR            0 10    3  4
41.339     91.090 2383  487.5( 616) 1.3129 28.919 2319
41.339     19.000 1619  274.2( 403) 1.3420 28.919 1933
                                                                   1.690 3267 1.904 0.71793 20.545 0.1118   2630 36.427 128.0
COMBUSTOR            0 11    4  4
41.500     88.606 2381  487.0( 615) 1.3130 28.919 2318
41.500     19.628 1643  280.6( 410) 1.3408 28.919 1946 1.652 3213 1.906 0.71865 20.545 0.1116   2613 35.888 127.2
COMBUSTOR            0 12    5  5
42.460     79.159 2369  483.7( 612) 1.3134 28.919 2313
42.460     21.893 1729  303.9( 433) 1.3368 28.919 1993 1.505 2999 1.912 0.71080 20.545 0.1128   2548 33.128 124.0
COMBUSTOR            0 13    6  5
44.059     72.317 2349  477.8( 606) 1.3141 28.919 2304
44.059     22.907 1772  315.9( 445) 1.3349 28.919 2017 1.411 2846 1.916 0.68843 20.545 0.1165   2501 30.448 121.7
COMBUSTOR            0 14    7  5
44.310     71.466 2346  476.9( 605) 1.3142 28.919 2302
44.310     23.159 1780  318.0( 447) 1.3345 28.919 2021 1.395 2820 1.916 0.68655 20.545 0.1168   2493 30.083 121.4
COMBUSTOR            0 15    8  5
44.774     69.880 2341  475.4( 604) 1.3143 28.919 2300
44.774     23.773 1798  322.8( 452) 1.3338 28.919 2030 1.361 2763 1.917 0.68380 20.545 0.1173   2479 29.360 120.6
COMBUSTOR            0 16    9  5
44.800     69.780 2340  475.3( 604) 1.3144 28.919 2300
44.800     23.805 1799  323.1( 452) 1.3338 28.919 2031 1.359 2760 1.917 0.68352 20.545 0.1174   2478 29.313 120.6
COMBUSTOR            0 17   10  5
46.260     65.467 2328  471.9( 600) 1.3148 28.919 2294
46.260     22.402 1790  320.8( 450) 1.3341 28.919 2026 1.357 2749 1.920 0.64372 20.545 0.1246   2470 27.500 120.2
COMBUSTOR            0 18   11  5
47.299     63.945 2322  469.9( 598) 1.3150 28.919 2291
47.299     19.157 1726  303.3( 432) 1.3369 28.919 1992 1.450 2887 1.921 0.59963 20.545 0.1338   2500 26.906 121.7
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READING = 0095 BLOCK = 32 TIME = 129.549 MACH 5.2 PT = 297.000 TT = 2432.6

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	5														
47.310	63.938	2321	469.9(	598)	1.3150	28.919	2291											
47.310	19.120	1725	303.1(	432)	1.3369	28.919	1991	1.451	2889	1.921	0.59915	20.545	0.1339	2501	26.901	121.7		
COMBUSTOR	0	20	13	5														
48.110	63.201	2317	468.5(	597)	1.3152	28.919	2289											
48.110	16.360	1660	285.3(	414)	1.3400	28.919	1955	1.546	3028	1.921	0.55846	20.545	0.1436	2535	26.278	123.4		
COMBUSTOR	0	21	14	4														
48.749	61.731	2313	467.4(	596)	1.3153	28.919	2287											
48.749	14.106	1605	270.5(	400)	1.3427	28.919	1925	1.651	3139	1.922	0.51617	20.545	0.1554	2566	25.177	124.9		
COMBUSTOR	0	22	15	5														
49.279	60.206	2310	466.6(	595)	1.3154	28.919	2286											
49.279	12.575	1567	260.2(	389)	1.3447	28.919	1903	1.689	3214	1.924	0.48273	20.545	0.1662	2587	24.109	125.9		
COMBUSTOR	0	23	16	4														
50.689	56.731	2302	464.5(	593)	1.3156	28.919	2282											
50.689	9.660	1481	237.4(	366)	1.3493	28.919	1854											
								1.819	3371	1.927	0.41142	20.545	0.1950	2635	21.554	128.3		
COMBUSTOR	0	24	17	4														
52.789	52.766	2293	461.9(	590)	1.3159	28.919	2278											
52.789	7.057	1385	212.0(	341)	1.3549	28.919	1796	1.969	3536	1.931	0.33721	20.545	0.2379	2688	18.531	130.8		
COMBUSTOR	0	25	18	4														
53.289	51.806	2291	461.3(	590)	1.3160	28.919	2277											
53.289	6.634	1368	207.8(	337)	1.3559	28.919	1786	1.995	3564	1.932	0.32343	20.545	0.2480	2697	17.911	131.3		
COMBUSTOR	0	26	19	5														
54.039	50.396	2289	460.6(	589)	1.3161	28.919	2276											
54.039	6.091	1346	201.7(	331)	1.3573	28.919	1772	2.031	3599	1.933	0.30487	20.545	0.2631	2709	17.052	131.8		
COMBUSTOR	0	27	20	5														
54.799	48.994	2286	459.9(	588)	1.3162	28.919	2275											
54.799	5.630	1326	196.7(	326)	1.3585	28.919	1760	2.062	3629	1.935	0.28830	20.545	0.2782	2719	16.260	132.3		
COMBUSTOR	0	28	21	5														
55.760	47.327	2283	459.0(	588)	1.3163	28.919	2273											
55.760	5.148	1305	191.2(	320)	1.3598	28.919	1747	2.096	3661	1.937	0.27006	20.545	0.2970	2729	15.366	132.8		
COMBUSTOR	0	29	22	4														
56.224	41.331	2282	458.7(	587)	1.3163	28.919	2273											
56.224	3.918	1258	178.8(	308)	1.3627	28.919	1717	2.180	3742	1.946	0.21800	20.545	0.3679	2759	12.678	134.3		
COMBUSTOR	0	30	23	5														
56.279	41.294	2282	458.7(	587)	1.3163	28.919	2273											
56.279	3.898	1256	178.5(	308)	1.3628	28.919	1716	2.182	3744	1.946	0.21739	20.545	0.3690	2759	12.648	134.3		
COMBUSTOR	0	31	24	5														
56.419	41.171	2282	458.6(	587)	1.3163	28.919	2272											
56.419	3.858	1254	177.8(	307)	1.3630	28.919	1714	2.187	3748	1.946	0.21583	20.545	0.3717	2761	12.871	134.4		
COMBUSTOR	0	32	25	4														
56.499	41.737	2282	458.5(	587)	1.3163	28.919	2272											
56.499	3.895	1252	177.5(	306)	1.3631	28.919	1713	2.189	3750	1.945	0.21828	20.545	0.3675	2761	12.722	134.4		
COMBUSTOR	0	33	26	4														
56.779	41.901	2281	458.3(	587)	1.3164	28.919	2272											
56.779	3.861	1248	176.3(	305)	1.3634	28.919	1710	2.197	3757	1.945	0.21756	20.545	0.3687	2764	12.702	134.5		
COMBUSTOR	0	34	27	4														
57.005	42.043	2280	458.2(	587)	1.3164	28.919	2272											
57.005	3.838	1244	175.4(	304)	1.3636	28.919	1708	2.203	3762	1.945	0.21715	20.545	0.3694	2765	12.695	134.6		
COMBUSTOR	0	35	28	3														
57.729	42.023	2279	457.8(	586)	1.3164	28.919	2271											
57.729	3.734	1235	172.9(	302)	1.3642	28.919	1702	2.219	3776	1.945	0.21375	20.545	0.3753	2770	12.542	134.8		
COMBUSTOR	0	36	29	4														
58.749	42.107	2277	457.2(	586)	1.3165	28.919	2270											
58.749	3.685	1228	171.3(	300)	1.3646	28.919	1698	2.228	3783	1.944	0.21238	20.545	0.3777	2772	12.485	134.9		
COMBUSTOR	0	37	30	5														
60.759	42.539	2275	456.5(	585)	1.3166	28.919	2269											
60.759	3.875	1240	174.3(	303)	1.3638	28.919	1705											
								2.204	3758	1.943	0.21977	20.545	0.3650	2762	12.835	134.4		

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READING = 0095  BLOCK =  32  TIME = 129.549  MACH  5.2  PT = 297.000  TT = 2432.6                                       PAGE  3

                P      T      H             GAMMA  MOLWT BONV  MACH  VEL    S      W/A      W     A/AC    MOMTM   G     IVAC  PHI  ETAC
COMBUSTOR        0   38   31   5
62.179     42.867 2274   456.2( 585) 1.3166 28.919 2269
62.179      4.034 1250   176.9( 306) 1.3632 28.919 1712 2.164 3739 1.942 0.22573 20.545 0.3553   2754 13.115 134.1
NOZZLE  AE          39   32   4
87.255     42.867 2274   456.2( 585) 1.3166 28.919 2269
87.255      0.281  597    14.5( 144) 1.3974 28.919 1197 3.927 4702 1.942 0.04141 20.545 1.0371   3142  3.026 152.9
NOZZLE  PO          40   33   4
87.255     42.867 2274   456.2( 585) 1.3166 28.919 2269
87.255      0.393  657    29.0( 158) 1.3957 28.919 1255 3.684 4624 1.943 0.05181 20.545 1.5484   3108  3.723 151.3
FICTIVE COMBUSTR    62   55   0
62.179    108.358 2274   456.2( 585) 1.3166 28.919 2269
62.179      0.393  504    -7.8( 121) 1.3989 28.919 1101 4.376 4819 1.879 0.07030 20.545 1.1410   3192  5.265 135.4
FICTIVE NOZZLE      63   56   0
87.255     44.347 2266   454.1( 583) 1.3169 28.919 2265
87.255      0.275  585    11.7( 141) 1.3977 28.919 1186 3.967 4705 1.939 0.04141 20.545 1.0371   3141  3.028 152.9
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READING = 0095 BLOCK = 32 TIME = 129.549 MACH 5.2 PT = 297.000 TT = 2432.6 PAGE 4

XABB	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PB0	P-IB/PT0	P-OB/PB0	P-OB/PT0
6.981E-01	1.060E 00	0.000	-3.425E-01	0.000	0.000	0.000	2.470E-02	2.696E 00	3.569E-03	0.000	0.000
1.836E 01	1.060E 00	0.000	-3.519E 01	0.000	0.000	0.000	1.634E 02	2.696E 00	3.569E-03	0.000	0.000
3.070E 01	1.800E 00	0.000	-1.511E 02	0.000	0.000	0.000	5.053E 02	4.579E 00	6.061E-03	0.000	0.000
3.508E 01	3.058E 00	0.000	-3.086E 02	0.000	0.000	0.000	6.804E 02	7.779E 00	1.030E-02	0.000	0.000
3.516E 01	3.076E 00	4.305E 00	-3.554E 02	0.000	0.000	0.000	6.838E 02	7.826E 00	1.036E-02	1.095E 01	1.449E-02
3.516E 01	3.078E 00	4.292E 00	-3.554E 02	0.000	0.000	0.000	6.841E 02	7.830E 00	1.036E-02	1.092E 01	1.445E-02
3.555E 01	3.170E 00	3.454E 00	-3.615E 02	0.000	0.000	0.000	7.229E 02	8.064E 00	1.067E-02	8.786E 00	1.163E-02
3.583E 01	3.156E 00	2.850E 00	-3.693E 02	-6.311E 01	-6.311E 01	0.000	7.512E 02	8.029E 00	1.063E-02	7.250E 00	9.596E-03
3.606E 01	3.145E 00	3.859E 00	-3.757E 02	-6.395E 01	-6.395E 01	0.000	7.749E 02	8.000E 00	1.059E-02	9.816E 00	1.299E-02
3.648E 01	3.500E 00	5.693E 00	-3.844E 02	-6.553E 01	-6.553E 01	0.000	8.185E 02	8.903E 00	1.178E-02	1.448E 01	1.917E-02
3.701E 01	3.285E 00	8.007E 00	-3.943E 02	-9.886E 01	-6.761E 01	-3.125E 01	8.747E 02	8.356E 00	1.106E-02	2.037E 01	2.696E-02
3.729E 01	4.202E 00	9.225E 00	-3.995E 02	-1.091E 02	-6.875E 01	-4.039E 01	9.045E 02	1.069E 01	1.415E-02	2.347E 01	3.106E-02
3.803E 01	6.637E 00	1.099E 01	-4.386E 02	-1.362E 02	-7.197E 01	-6.425E 01	9.855E 02	1.688E 01	2.235E-02	2.795E 01	3.699E-02
3.831E 01	8.644E 00	1.165E 01	-4.569E 02	-1.467E 02	-7.346E 01	-7.320E 01	1.017E 03	2.199E 01	2.911E-02	2.964E 01	3.923E-02
3.875E 01	1.182E 01	1.198E 01	-4.926E 02	-1.641E 02	-7.683E 01	-8.729E 01	1.066E 03	3.006E 01	3.979E-02	3.047E 01	4.033E-02
3.878E 01	1.203E 01	1.200E 01	-4.949E 02	-1.653E 02	-7.710E 01	-8.822E 01	1.070E 03	3.059E 01	4.049E-02	3.053E 01	4.040E-02
3.901E 01	1.369E 01	1.269E 01	-5.113E 02	-1.750E 02	-7.944E 01	-9.558E 01	1.096E 03	3.482E 01	4.609E-02	3.227E 01	4.271E-02
3.929E 01	1.354E 01	1.351E 01	-5.275E 02	-1.873E 02	-8.282E 01	-1.044E 02	1.128E 03	3.444E 01	4.558E-02	3.437E 01	4.550E-02
3.950E 01	1.342E 01	9.415E 00	-5.376E 02	-1.969E 02	-8.582E 01	-1.111E 02	1.153E 03	3.415E 01	4.520E-02	2.395E 01	3.170E-02
3.978E 01	1.393E 01	4.000E 00	-5.560E 02	-2.102E 02	-9.038E 01	-1.198E 02	1.185E 03	3.542E 01	4.689E-02	1.018E 01	1.347E-02
4.000E 01	1.432E 01	4.065E 00	-5.720E 02	-2.211E 02	-9.453E 01	-1.266E 02	1.211E 03	3.643E 01	4.822E-02	1.034E 01	1.369E-02
4.040E 01	1.668E 01	4.184E 00	-6.031E 02	-2.416E 02	-1.028E 02	-1.388E 02	1.258E 03	4.244E 01	5.617E-02	1.064E 01	1.409E-02
4.041E 01	1.674E 01	4.186E 00	-6.038E 02	-2.421E 02	-1.030E 02	-1.391E 02	1.259E 03	4.259E 01	5.637E-02	1.065E 01	1.410E-02
4.127E 01	2.184E 01	4.442E 00	-6.793E 02	-2.930E 02	-1.231E 02	-1.699E 02	1.361E 03	5.556E 01	7.354E-02	1.130E 01	1.496E-02
4.134E 01	2.222E 01	4.461E 00	-6.854E 02	-2.974E 02	-1.248E 02	-1.726E 02	1.369E 03	5.653E 01	7.483E-02	1.135E 01	1.502E-02
4.150E 01	2.317E 01	4.962E 00	-7.005E 02	-3.082E 02	-1.290E 02	-1.792E 02	1.388E 03	5.895E 01	7.803E-02	1.262E 01	1.671E-02
4.246E 01	1.500E 01	7.947E 00	-7.550E 02	-3.763E 02	-1.555E 02	-2.208E 02	1.503E 03	3.816E 01	5.051E-02	2.022E 01	2.676E-02
4.406E 01	1.866E 01	1.292E 01	-7.843E 02	-4.973E 02	-2.004E 02	-2.969E 02	1.697E 03	4.748E 01	6.284E-02	3.286E 01	4.350E-02
4.431E 01	1.924E 01	1.314E 01	-7.892E 02	-5.160E 02	-2.072E 02	-3.087E 02	1.727E 03	4.894E 01	6.478E-02	3.342E 01	4.424E-02
4.477E 01	2.030E 01	1.354E 01	-7.993E 02	-5.461E 02	-2.196E 02	-3.265E 02	1.784E 03	5.165E 01	6.836E-02	3.445E 01	4.560E-02
4.480E 01	2.036E 01	1.357E 01	-7.999E 02	-5.477E 02	-2.203E 02	-3.274E 02	1.787E 03	5.180E 01	6.856E-02	3.451E 01	4.568E-02
4.626E 01	1.566E 01	1.484E 01	-7.925E 02	-6.186E 02	-2.573E 02	-3.613E 02	1.966E 03	3.984E 01	5.273E-02	3.776E 01	4.997E-02
4.730E 01	1.232E 01	1.575E 01	-7.527E 02	-6.582E 02	-2.817E 02	-3.765E 02	2.095E 03	3.133E 01	4.147E-02	4.007E 01	5.303E-02
4.731E 01	1.228E 01	1.571E 01	-7.521E 02	-6.586E 02	-2.819E 02	-3.767E 02	2.096E 03	3.124E 01	4.135E-02	3.996E 01	5.289E-02
4.811E 01	7.837E 00	1.277E 01	-7.099E 02	-6.877E 02	-2.997E 02	-3.881E 02	2.196E 03	1.994E 01	2.639E-02	3.248E 01	4.300E-02
4.875E 01	1.042E 01	1.042E 01	-6.738E 02	-7.098E 02	-3.131E 02	-3.967E 02	2.276E 03	2.651E 01	3.509E-02	2.651E 01	3.509E-02
4.928E 01	8.475E 00	8.475E 00	-6.477E 02	-7.274E 02	-3.239E 02	-4.035E 02	2.343E 03	2.156E 01	2.854E-02	2.156E 01	2.854E-02
5.069E 01	7.350E 00	7.350E 00	-5.892E 02	-7.704E 02	-3.505E 02	-4.199E 02	2.520E 03	1.870E 01	2.475E-02	1.870E 01	2.475E-02
5.279E 01	4.800E 00	4.800E 00	-5.223E 02	-8.241E 02	-3.850E 02	-4.391E 02	2.786E 03	1.221E 01	1.616E-02	1.221E 01	1.616E-02
5.329E 01	4.383E 00	4.383E 00	-5.104E 02	-8.352E 02	-3.923E 02	-4.429E 02	2.850E 03	1.115E 01	1.476E-02	1.115E 01	1.476E-02
5.404E 01	3.870E 00	3.870E 00	-4.944E 02	-8.507E 02	-4.026E 02	-4.481E 02	2.946E 03	9.845E 00	1.303E-02	9.845E 00	1.303E-02
5.480E 01	3.350E 00	3.350E 00	-4.804E 02	-8.653E 02	-4.122E 02	-4.530E 02	3.043E 03	8.522E 00	1.128E-02	8.522E 00	1.128E-02
5.576E 01	3.107E 00	3.107E 00	-4.648E 02	-8.819E 02	-4.233E 02	-4.586E 02	3.167E 03	7.904E 00	1.046E-02	7.904E 00	1.046E-02
5.622E 01	2.990E 00	2.990E 00	-4.341E 02	-8.889E 02	-4.279E 02	-4.610E 02	3.209E 03	7.606E 00	1.007E-02	7.606E 00	1.007E-02
5.628E 01	1.450E 00	2.976E 00	-4.333E 02	-8.897E 02	-4.283E 02	-4.613E 02	3.217E 03	3.689E 00	4.882E-03	7.571E 00	1.002E-02
5.642E 01	1.450E 00	2.941E 00	-4.313E 02	-8.916E 02	-4.296E 02	-4.620E 02	3.234E 03	3.689E 00	4.882E-03	7.481E 00	9.902E-03
5.650E 01	2.921E 00	2.921E 00	-4.302E 02	-8.927E 02	-4.302E 02	-4.624E 02	3.245E 03	7.430E 00	9.834E-03	7.430E 00	9.834E-03
5.678E 01	2.850E 00	2.850E 00	-4.264E 02	-8.964E 02	-4.326E 02	-4.638E 02	3.280E 03	7.250E 00	9.596E-03	7.250E 00	9.596E-03
5.700E 01	2.957E 00	2.957E 00	-4.236E 02	-8.993E 02	-4.344E 02	-4.649E 02	3.309E 03	7.522E 00	9.956E-03	7.522E 00	9.956E-03
5.773E 01	3.300E 00	3.300E 00	-4.151E 02	-9.080E 02	-4.396E 02	-4.683E 02	3.402E 03	8.395E 00	1.111E-02	8.395E 00	1.111E-02
5.875E 01	2.962E 00	2.962E 00	-4.078E 02	-9.189E 02	-4.458E 02	-4.731E 02	3.532E 03	7.536E 00	9.975E-03	7.536E 00	9.975E-03
6.076E 01	1.312E 00	1.312E 00	-4.073E 02	-9.332E 02	-4.541E 02	-4.791E 02	3.790E 03	3.339E 00	4.419E-03	3.339E 00	4.419E-03
6.218E 01	1.669E 00	1.669E 00	-4.073E 02	-9.395E 02	-4.579E 02	-4.817E 02	3.972E 03	4.245E 00	5.619E-03	4.245E 00	5.619E-03
6.464E 01	2.974E 00	2.974E 00	-4.073E 02	-9.537E 02	-4.621E 02	-4.915E 02	4.289E 03	7.565E 00	1.001E-02	7.565E 00	1.001E-02
6.502E 01	2.225E 00	3.173E 00	-4.073E 02	-9.564E 02	-4.626E 02	-4.939E 02	4.337E 03	5.660E 00	7.492E-03	8.071E 00	1.068E-02
6.506E 01	2.225E 00	3.194E 00	-4.073E 02	-9.567E 02	-4.626E 02	-4.941E 02	4.342E 03	5.660E 00	7.492E-03	8.125E 00	1.075E-02

READING = 0095 BLOCK = 32 TIME = 129.549 MACH 5.2 PT = 297.000 TT = 2432.6

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.526E 01	2.261E 00	3.300E 00	-4.073E 02	-9.563E 02	-4.628E 02	-4.955E 02	4.368E 03	5.752E 00	7.614E-03	6.395E 00	1.111E-02
6.692E 01	2.562E 00	2.787E 00	-3.762E 02	-9.694E 02	-4.653E 02	-5.042E 02	4.584E 03	6.519E 00	8.628E-03	7.091E 00	9.386E-03
6.759E 01	1.887E 00	2.107E 00	-3.289E 02	-9.726E 02	-4.666E 02	-5.060E 02	4.665E 03	4.799E 00	6.352E-03	5.361E 00	7.096E-03
6.836E 01	1.110E 00	1.716E 00	-2.823E 02	-9.765E 02	-4.683E 02	-5.082E 02	4.760E 03	2.824E 00	3.737E-03	4.365E 00	5.778E-03
6.908E 01	1.224E 00	1.350E 00	-2.476E 02	-9.808E 02	-4.698E 02	-5.110E 02	4.848E 03	3.113E 00	4.120E-03	3.434E 00	4.545E-03
6.960E 01	1.320E 00	1.309E 00	-2.192E 02	-9.840E 02	-4.709E 02	-5.131E 02	4.922E 03	3.358E 00	4.444E-03	3.330E 00	4.407E-03
7.064E 01	1.172E 00	1.245E 00	-1.786E 02	-9.863E 02	-4.724E 02	-5.139E 02	5.036E 03	2.981E 00	3.946E-03	3.167E 00	4.192E-03
7.107E 01	1.105E 00	1.211E 00	-1.618E 02	-9.865E 02	-4.730E 02	-5.135E 02	5.088E 03	2.811E 00	3.721E-03	3.081E 00	4.077E-03
7.260E 01	1.251E 00	1.090E 00	-1.057E 02	-9.870E 02	-4.746E 02	-5.124E 02	5.273E 03	3.182E 00	4.211E-03	2.773E 00	3.670E-03
7.275E 01	1.265E 00	1.015E 00	-1.005E 02	-9.870E 02	-4.747E 02	-5.122E 02	5.290E 03	3.218E 00	4.259E-03	2.582E 00	3.418E-03
7.350E 01	1.022E 00	6.400E-01	-6.838E 01	-9.867E 02	-4.753E 02	-5.115E 02	5.374E 03	2.599E 00	3.440E-03	1.628E 00	2.155E-03
7.350E 01	1.020E 00	6.380E-01	-6.714E 01	-9.867E 02	-4.753E 02	-5.115E 02	5.375E 03	2.595E 00	3.435E-03	1.623E 00	2.148E-03
7.483E 01	5.900E-01	0.000	-5.013E 01	-9.858E 02	-4.760E 02	-5.098E 02	5.427E 03	1.501E 00	1.987E-03	0.000	0.000
7.768E 01	4.250E-01	0.000	-2.983E 01	-9.865E 02	-4.767E 02	-5.098E 02	5.525E 03	1.081E 00	1.431E-03	0.000	0.000
8.158E 01	5.100E-01	0.000	-9.849E 00	-9.864E 02	-4.766E 02	-5.098E 02	5.630E 03	1.297E 00	1.717E-03	0.000	0.000
8.439E 01	5.350E-01	0.000	1.760E 00	-9.857E 02	-4.759E 02	-5.098E 02	5.684E 03	1.361E 00	1.801E-03	0.000	0.000
8.725E 01	6.150E-01	0.000	1.563E 01	-9.842E 02	-4.744E 02	-5.098E 02	5.707E 03	1.564E 00	2.071E-03	0.000	0.000
8.728E 01	6.152E-01	0.000	1.564E 01	-9.842E 02	-4.744E 02	-5.098E 02	5.707E 03	1.565E 00	2.071E-03	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	9.125E 01	9.125E 01	2.569E-03	3.960E-02
4.041E 01	1.189E-01	9.137E 01	2.563E-03	3.859E-02
4.127E 01	1.017E 01	1.015E 02	2.682E-03	4.103E-02
4.134E 01	7.592E-01	1.023E 02	2.691E-03	4.125E-02
4.150E 01	1.874E 00	1.042E 02	2.713E-03	4.176E-02
4.246E 01	1.092E 01	1.151E 02	2.796E-03	4.244E-02
4.406E 01	1.735E 01	1.324E 02	2.845E-03	4.250E-02
4.431E 01	2.631E 00	1.351E 02	2.857E-03	4.259E-02
4.477E 01	4.829E 00	1.399E 02	2.882E-03	4.283E-02
4.480E 01	2.702E-01	1.402E 02	2.883E-03	4.284E-02
4.626E 01	1.473E 01	1.549E 02	2.897E-03	4.048E-02
4.730E 01	1.007E 01	1.650E 02	2.849E-03	3.666E-02
4.731E 01	1.011E-01	1.651E 02	2.848E-03	3.662E-02
4.811E 01	7.480E 00	1.726E 02	2.796E-03	3.347E-02
4.875E 01	5.704E 00	1.783E 02	2.750E-03	3.026E-02
4.928E 01	4.478E 00	1.827E 02	2.717E-03	2.704E-02
5.069E 01	1.086E 01	1.936E 02	2.642E-03	2.205E-02
5.279E 01	1.387E 01	2.075E 02	2.556E-03	1.791E-02
5.329E 01	2.959E 00	2.104E 02	2.541E-03	1.704E-02
5.404E 01	4.240E 00	2.147E 02	2.521E-03	1.589E-02
5.480E 01	4.074E 00	2.188E 02	2.504E-03	1.489E-02
5.576E 01	4.872E 00	2.236E 02	2.485E-03	1.300E-02
5.622E 01	1.465E 00	2.251E 02	2.429E-03	1.063E-02
5.628E 01	2.167E-01	2.253E 02	2.428E-03	1.079E-02
5.642E 01	5.439E-01	2.259E 02	2.426E-03	1.070E-02
5.650E 01	3.135E-01	2.262E 02	2.419E-03	1.079E-02
5.678E 01	1.095E 00	2.273E 02	2.411E-03	1.071E-02
5.700E 01	8.815E-01	2.281E 02	2.405E-03	1.066E-02
5.773E 01	2.803E 00	2.309E 02	2.391E-03	1.042E-02
5.875E 01	3.903E 00	2.348E 02	2.381E-03	1.040E-02
6.076E 01	7.780E 00	2.426E 02	2.385E-03	1.068E-02
6.218E 01	5.641E 00	2.483E 02	2.387E-03	1.099E-02
6.725E 01	9.674E 00	2.579E 02	2.418E-03	1.058E-02
6.464E 01	9.176E 00	2.685E 02	2.342E-03	8.917E-03
6.502E 01	1.287E 00	2.698E 02	2.321E-03	8.309E-03
6.506E 01	1.303E-01	2.699E 02	2.322E-03	8.332E-03
6.526E 01	6.564E-01	2.706E 02	2.325E-03	8.484E-03
6.692E 01	5.492E 00	2.761E 02	2.310E-03	8.222E-03
6.759E 01	1.890E 00	2.779E 02	2.252E-03	6.642E-03
6.836E 01	1.811E 00	2.798E 02	2.184E-03	5.140E-03
6.908E 01	1.458E 00	2.812E 02	2.163E-03	4.708E-03
6.969E 01	1.199E 00	2.824E 02	2.166E-03	4.861E-03
7.064E 01	1.816E 00	2.842E 02	2.150E-03	4.564E-03
7.107E 01	7.922E-01	2.850E 02	2.140E-03	4.418E-03
7.260E 01	2.772E 00	2.878E 02	2.136E-03	4.440E-03
7.275E 01	2.577E-01	2.881E 02	2.131E-03	4.353E-03
7.350E 01	1.134E 00	2.892E 02	2.074E-03	3.435E-03
7.350E 01	1.950E-03	2.892E 02	2.073E-03	3.430E-03
7.483E 01	5.592E-01	2.897E 02	2.011E-03	2.654E-03
7.768E 01	8.413E-01	2.906E 02	1.948E-03	2.065E-03
8.158E 01	8.480E-01	2.914E 02	1.964E-03	2.351E-03
8.439E 01	4.738E-01	2.919E 02	1.962E-03	2.444E-03
8.725E 01	2.090E-01	2.921E 02	1.976E-03	2.677E-03
8.725E 01	0.000	2.921E 02	1.976E-03	2.678E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-277.	(LBF)
MEASURED THRUST	-541.	(LBF)
CALCULATED SPECIFIC IMPULSE	-277.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-541.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.1455	
MEASURED THRUST COEFFICIENT	-.2843	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	91.3	(LBF)
INLET MOMENTUM CHANGE	-694.3	(LBF)
COMBUSTOR FRICTION DRAG	157.0	(LBF)
COMBUSTOR STRUT DRAG	7.73	(LBF)
COMBUSTOR MOMENTUM CHANGE	31.	(LBF)
NOZZLE FRICTION DRAG	32.78	(LBF)
NOZZLE STRUT DRAG	3.81	(LBF)
NOZZLE MOMENTUM CHANGE	366.	(LBF)
NOZZLE PRESSURE INTEGRAL	423.	(LBF)
EXTERNAL FRICTION DRAG	40.01	(LBF)
EXTERNAL PRESSURE INTEGRAL	-936.	(LBF)
TOTAL EXTERNAL DRAG	-976.	(LBF)
TOTAL STRUT DRAG	11.54	(LBF)
CAVITY FORCE	-1330.	(LBF)
CALCULATED LOAD CELL FORCE	-2582.	(LBF)
MEASURED LOAD CELL FORCE	-2846.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2769	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.163	(IN)
NOZZLE SHROUD TRAILING EDGE	73.503	(IN)
NOZZLE PLUG TRAILING EDGE	67.255	(IN)
STRUT LEADING EDGE	56.419	(IN)
STRUT TRAILING EDGE	65.019	(IN)
COMBUSTOR EXIT	62.179	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8661	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2498	
DELTA PT2	0.0957	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3648	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2545	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.6896	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9093	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9211	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.6948	
ENTHALPY AT PO - SUPERSONIC	-0.25	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	13.71	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.3956
COMBUSTOR EFFECTIVENESS	0.8218
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9998
NOZZLE COEFFICIENT - CT	0.9477
PROCESS EFFICIENCY	1.0119
KINETIC ENERGY EFFICIENCY	0.9995

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.264	
1C	44.300	
2A	48.739	
2C	46.250	
3A	54.029	
3B	56.214	
4	44.764	

Reading 95

t = 140.35 sec.

The injected fuel
is possibly unburned.

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RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	299.750	3081	694.8(819)	1.2906	28.919	2615											
0.000	0.376	540	0.9(130)	1.3985	28.919	1140	5.170	5892	1.898	0.07673	17.010	0.8655	3199	7.026	188.0		
SPIKE TIP NS		2	0 7														
0.600	13.950	3081	694.8(819)	1.2903	28.919	2614											
0.600	12.752	3019	675.9(801)	1.2923	28.919	2590	0.375	971	2.109	0.07673	17.010	0.8655	3340	1.156	196.4		
WIND TUNNEL		3	0 0														
0.000	299.750	3081	694.8(819)	1.2906	28.919	2615											
0.000	0.406	582	3.8(133)	1.3983	28.919	1152	5.103	5880	1.898	0.08094	17.942	0.8655	3369	7.396	187.8		
SPIKE TIP NS		4	0 0														
0.600	13.950	3081	694.8(819)	1.2903	28.919	2614											
0.600	12.598	3011	673.4(799)	1.2926	28.919	2587	0.400	1034	2.109	0.08094	17.942	0.8655	3369	1.300	187.8		
INLET THROAT		5	0 4														
40.400	112.188	3007	672.1(797)	1.2929	28.919	2585											
40.400	14.085	1833	332.6(462)	1.3324	28.919	2049	2.011	4122	1.959	0.59270	17.942	0.1120	2703	40.047	150.6		
INLET UPNRSK		6	0 3														
40.400	112.188	3007	672.1(797)	1.2929	28.919	2585											
40.400	13.084	1800	323.4(452)	1.3337	28.919	2031	2.056	4177	1.959	0.56835	17.942	0.1233	2743	36.897	152.9		
INLET DNNRSK		7	0 4														
40.400	75.432	3007	672.2(797)	1.2929	28.919	2585											
40.400	61.992	2876	632.5(759)	1.2970	28.919	2532	0.556	1409	1.986	0.56835	17.942	0.1233	2743	12.443	152.9		
COMBUSTOR	0	8	1 21														
40.410	100.961	2974	671.5(809)	1.2946	28.112	2609											
40.410	10.467	1724	302.5(444)	1.3379	28.112	2020	2.127	4297	2.011	0.62652	17.983	0.1121	2702	41.836	150.3	0.07	0.07
COMBUSTOR	0	9	2 21														
41.270	84.103	2911	668.8(812)	1.2976	27.319	2622											
41.270	12.841	1854	347.3(484)	1.3337	27.319	2121	1.890	4010	2.065	0.62990	18.023	0.1117	2614	39.251	145.0	0.14	0.04
COMBUSTOR	0	10	3 21														
41.280	85.790	2883	668.5(804)	1.2990	27.289	2612											
41.280	12.869	1825	347.8(486)	1.3351	27.289	2107	1.901	4006	2.061	0.62978	18.023	0.1117	2613	39.210	145.0	0.14	0.01
COMBUSTOR	0	11	4 21														
41.345	85.147	2878	668.1(802)	1.2992	27.285	2610											
41.345	13.049	1832	350.8(488)	1.3349	27.285	2111	1.888	3985	2.061	0.63014	18.023	0.1117	2606	39.023	144.6	0.14	0.00
COMBUSTOR	0	12	5 21														
41.500	83.393	2875	667.3(801)	1.2994	27.284	2609											
41.500	13.757	1863	360.3(497)	1.3337	27.284	2128	1.842	3919	2.062	0.63106	18.023	0.1115	2589	38.459	143.6	0.14	0.00
COMBUSTOR	0	13	6 21														
42.460	50.389	3398	661.8(956)	1.2731	27.897	2777											
42.460	11.435	2434	355.8(658)	1.3067	27.902	2381	1.644	3912	2.132	0.62486	18.023	0.1126	2522	37.992	139.9	0.14	0.73
COMBUSTOR	0	14	7 21														
44.065	65.909	2909	652.0(810)	1.2970	27.374	2618											
44.065	16.671	2100	403.9(565)	1.3241	27.374	2247	1.568	3523	2.081	0.60422	18.023	0.1165	2471	33.085	137.1	0.14	0.11
COMBUSTOR	0	15	8 21														
44.310	67.862	2834	650.5(788)	1.3004	27.297	2591											
44.310	17.203	2042	408.7(549)	1.3270	27.297	2221	1.566	3478	2.072	0.60276	18.023	0.1167	2463	32.582	136.6	0.14	0.02
COMBUSTOR	0	16	9 21														
44.780	67.046	2815	647.7(782)	1.3012	27.286	2583											
44.780	18.222	2062	417.9(555)	1.3264	27.286	2232	1.519	3391	2.071	0.60042	18.023	0.1172	2447	31.640	135.7	0.14	0.00
COMBUSTOR	0	17	10 21														
44.800	67.034	2813	647.6(782)	1.3013	27.284	2583											
44.800	18.266	2061	418.3(555)	1.3264	27.284	2232	1.517	3387	2.071	0.60011	18.023	0.1173	2446	31.587	135.7	0.14	0.00
COMBUSTOR	0	18	11 21														
46.260	63.359	2786	639.4(774)	1.3022	27.284	2571											
46.260	16.559	2020	406.1(543)	1.3279	27.284	2211	1.545	3416	2.072	0.56529	18.023	0.1245	2442	30.010	135.5	0.14	0.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOPTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
47.305	61.461	2831	633.8(787)	1.2998	27.352	2586											
47.305	15.338	2033	390.3(505)	1.3267	27.352	2214	1.576	3490	2.078	0.52514	18.023	0.1340	2481	28.482	137.7	0.14	0.08
COMBUSTOR	0	20	13 21														
47.310	63.337	2778	633.7(771)	1.3023	27.294	2567											
47.310	15.319	1975	390.1(529)	1.3294	27.294	2187	1.597	3492	2.071	0.52608	18.023	0.1338	2481	28.546	137.6	0.14	0.01
COMBUSTOR	0	21	14 21														
48.110	64.087	2757	629.9(765)	1.3031	27.285	2559											
48.110	15.285	1953	386.0(523)	1.3303	27.285	2176	1.606	3493	2.068	0.49033	18.023	0.1435	2519	26.618	139.7	0.14	0.00
COMBUSTOR	0	22	15 21														
48.755	63.581	2748	627.3(762)	1.3034	27.284	2555											
48.755	12.896	1869	361.8(498)	1.3335	27.284	2131	1.711	3645	2.067	0.45281	18.023	0.1554	2555	25.650	141.8	0.14	0.00
COMBUSTOR	0	23	16 21														
49.285	63.008	2742	625.6(760)	1.3036	27.284	2552											
49.285	10.975	1795	340.3(477)	1.3364	27.284	2091	1.807	3778	2.067	0.42349	18.023	0.1662	2583	24.863	143.3	0.14	0.00
COMBUSTOR	0	24	17 21														
50.695	60.112	2795	621.7(764)	1.3028	27.311	2556											
50.695	8.156	1694	303.5(448)	1.3405	27.311	2033	1.963	3990	2.072	0.36093	18.023	0.1950	2643	22.381	146.6	0.14	0.03
COMBUSTOR	0	25	18 21														
52.795	55.348	2697	612.5(753)	1.3051	27.055	2543											
52.795	5.050	1494	252.6(394)	1.3509	27.055	1926	2.204	4244	2.087	0.29769	18.137	0.2379	2700	19.634	148.9	0.16	0.02
COMBUSTOR	0	26	19 21														
53.295	54.829	2683	611.5(748)	1.3057	27.043	2538											
53.295	4.517	1445	242.5(381)	1.3537	27.043	1897	2.266	4297	2.086	0.28553	18.137	0.2480	2709	19.067	149.4	0.16	0.00
COMBUSTOR	0	27	20 21														
54.045	53.441	2676	610.1(746)	1.3060	27.041	2535											
54.045	4.037	1409	232.9(371)	1.3557	27.041	1874	2.318	4345	2.087	0.26915	18.137	0.2631	2721	18.172	150.0	0.16	0.00
COMBUSTOR	0	28	21 21														
54.805	51.709	2672	608.8(745)	1.3061	27.041	2533											
54.805	3.550	1378	222.5(360)	1.3579	27.040	1851	2.376	4397	2.089	0.25452	18.137	0.2782	2732	17.390	150.6	0.16	0.00
COMBUSTOR	0	29	22 21														
55.760	41.054	2829	607.3(791)	1.2987	27.215	2591											
55.760	3.357	1535	218.2(405)	1.3472	27.215	1944	2.270	4413	2.120	0.23851	18.137	0.2969	2743	16.356	151.2	0.16	0.18
COMBUSTOR	0	30	23 21														
56.230	45.351	2689	606.7(750)	1.3052	27.066	2539											
56.230	3.262	1399	222.8(368)	1.3561	27.066	1867	2.348	4383	2.100	0.19249	18.137	0.3679	2778	13.111	153.2	0.16	0.03
COMBUSTOR	0	31	24 21														
56.285	45.041	2668	606.6(744)	1.3062	27.044	2531											
56.285	2.501	1295	200.1(339)	1.3624	27.044	1801	2.505	4510	2.099	0.19191	18.137	0.3690	2779	13.451	153.2	0.16	0.00
COMBUSTOR	0	32	25 21														
56.425	45.226	2665	606.4(743)	1.3063	27.041	2530											
56.425	2.486	1289	199.5(337)	1.3627	27.041	1797	2.511	4512	2.098	0.19057	18.137	0.3716	2780	13.363	153.3	0.16	0.00
COMBUSTOR	0	33	26 21														
56.505	44.983	2702	606.3(754)	1.3046	27.081	2544											
56.505	3.207	1404	219.7(369)	1.3557	27.081	1869	2.353	4398	2.102	0.19273	18.137	0.3674	2781	13.174	153.3	0.16	0.04
COMBUSTOR	0	34	27 21														
56.785	47.344	2668	606.0(744)	1.3061	27.047	2531											
56.785	3.150	1359	217.1(357)	1.3586	27.046	1842	2.395	4411	2.095	0.19203	18.137	0.3688	2784	13.164	153.5	0.16	0.01
COMBUSTOR	0	35	28 21														
57.011	48.080	2663	605.7(742)	1.3064	27.041	2529											
57.011	3.257	1362	219.5(357)	1.3585	27.041	1844	2.384	4396	2.093	0.19174	18.137	0.3693	2786	13.100	153.6	0.16	0.00
COMBUSTOR	0	36	29 4														
57.735	45.215	2715	604.9(757)	1.3040	27.098	2548											
57.735	3.600	1452	228.4(382)	1.3528	27.098	1898	2.286	4340	2.103	0.18869	18.137	0.3753	2793	12.728	154.0	0.16	0.06
COMBUSTOR	0	37	30 21														
58.755	48.404	2664	603.9(742)	1.3062	27.049	2529											
58.755	3.075	1340	211.1(351)	1.3597	27.049	1830	2.423	4433	2.093	0.18749	18.137	0.3777	2797	12.917	154.2	0.16	0.01

READING = 0095 BLOCK = 44 TIME = 140.349 MACH 5.2 PI = 299.750 TT = 3081.3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
60.765	38.890	2053	602.5(739)	1.3067	27.042	2525											
60.765	1.350	1134	156.8(295)	1.3720	27.042	1691	2.793	4723	2.106	0.19402	18.137	0.3650	2789	14.240	153.8	0.16	0.00
COMBUSTOR	0	39	32 21														
62.185	49.037	2650	601.9(738)	1.3068	27.041	2523											
62.185	2.644	1274	195.5(333)	1.3636	27.040	1788	2.522	4509	2.090	0.19928	18.137	0.3553	2783	13.964	153.4	0.16	0.00
COMBUSTOR	0	40	33 5														
64.649	30.392	3105	600.3(873)	1.2850	27.546	2684											
64.649	5.599	2095	286.2(564)	1.3201	27.548	2234	1.775	3965	2.160	0.18889	18.137	0.3749	2773	11.639	152.9	0.16	0.52
COMBUSTOR	0	41	34 4														
65.025	32.974	2893	600.0(810)	1.2953	27.310	2612											
65.025	4.250	1770	258.0(471)	1.3350	27.311	2074	1.995	4137	2.140	0.17561	18.137	0.4032	2771	11.291	152.8	0.16	0.28
COMBUSTOR	REGEN	42	35 2														
65.025	32.974	3174	690.6(898)	1.2856	27.309	2725											
65.025	4.678	2007	327.5(540)	1.3258	27.311	2201	1.937	4263	2.170	0.17561	18.137	0.4032	2866	11.033	159.1	0.16	0.28
NOZZLE AE		43	36 3														
87.261	32.974	2893	600.0(807)	1.2953	27.310	2612											
87.261	0.352	915	21.8(235)	1.3827	27.311	1518	3.544	5379	2.140	0.03656	18.137	1.9371	3207	3.056	176.8	0.16	0.28
NOZZLE PO		44	37 3														
87.261	32.974	2893	600.0(807)	1.2953	27.310	2612											
87.261	0.406	952	31.5(245)	1.3806	27.311	1547	3.447	5333	2.140	0.04021	18.137	1.7610	3190	3.333	175.9	0.16	0.28
NOZZLE AE REGEN		45	38 3														
87.261	32.974	3174	690.6(898)	1.2856	27.309	2725											
87.261	0.386	1051	57.8(271)	1.3749	27.311	1622	3.469	5627	2.170	0.03656	18.137	1.9371	3364	3.197	185.5	0.16	0.28
NOZZLE PO REGEN		46	39 3														
87.261	32.974	3174	690.6(898)	1.2856	27.309	2725											
87.261	0.406	1066	61.6(275)	1.3740	27.311	1633	3.436	5610	2.170	0.03780	18.137	1.8734	3358	3.296	185.1	0.16	0.28
FICTIVE COMBUSTR		66	59 0														
65.025	112.188	3509	600.0(994)	1.2659	28.020	2807											
65.025	0.406	865	-182.1(223)	1.3794	28.026	1472	4.251	6256	2.086	0.05208	18.137	1.3598	3668	5.063	202.2	0.16	1.00
FICTIVE NOZZLE		67	60 0														
87.261	41.120	2868	592.0(802)	1.2962	27.311	2602											
87.261	0.313	824	-2.1(211)	1.3874	27.311	1443	3.779	5452	2.121	0.03656	18.137	1.9371	3229	3.097	178.0	0.16	0.28

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.981E-01	1.065E 00	0.000	-3.423E-01	0.000	0.000	0.000	2.470E-02	2.621E 00	3.553E-03	0.000	0.000
1.836E 01	1.065E 00	0.000	-3.536E 01	0.000	0.000	0.000	1.634E 02	2.621E 00	3.553E-03	0.000	0.000
3.070E 01	1.800E 00	0.000	-1.515E 02	0.000	0.000	0.000	5.053E 02	4.431E 00	6.005E-03	0.000	0.000
3.508E 01	3.062E 00	0.000	-3.090E 02	0.000	0.000	0.000	6.804E 02	7.537E 00	1.021E-02	0.000	0.000
3.516E 01	3.079E 00	4.346E 00	-3.566E 02	0.000	0.000	0.000	6.841E 02	7.579E 00	1.027E-02	1.070E 01	1.450E-02
3.517E 01	3.080E 00	4.332E 00	-3.566E 02	0.000	0.000	0.000	6.843E 02	7.582E 00	1.028E-02	1.066E 01	1.445E-02
3.555E 01	3.160E 00	3.441E 00	-3.625E 02	0.000	0.000	0.000	7.225E 02	7.778E 00	1.054E-02	8.470E 00	1.148E-02
3.583E 01	3.138E 00	2.775E 00	-3.706E 02	-1.262E 02	-1.262E 02	0.000	7.515E 02	7.723E 00	1.047E-02	6.831E 00	9.258E-03
3.606E 01	3.120E 00	3.742E 00	-3.770E 02	-1.279E 02	-1.279E 02	0.000	7.745E 02	7.680E 00	1.041E-02	9.212E 00	1.249E-02
3.648E 01	3.457E 00	5.548E 00	-3.857E 02	-1.310E 02	-1.310E 02	0.000	8.183E 02	8.511E 00	1.153E-02	1.366E 01	1.851E-02
3.701E 01	3.285E 00	7.825E 00	-3.961E 02	-1.816E 02	-1.351E 02	-4.643E 01	8.743E 02	8.086E 00	1.096E-02	1.926E 01	2.611E-02
3.729E 01	4.219E 00	9.050E 00	-4.019E 02	-1.978E 02	-1.375E 02	-6.034E 01	9.048E 02	1.039E 01	1.408E-02	2.228E 01	3.019E-02
3.803E 01	6.630E 00	1.086E 01	-4.413E 02	-2.395E 02	-1.438E 02	-9.564E 01	9.851E 02	1.632E 01	2.212E-02	2.673E 01	3.623E-02
3.831E 01	8.649E 00	1.156E 01	-4.603E 02	-2.561E 02	-1.468E 02	-1.093E 02	1.017E 03	2.129E 01	2.886E-02	2.846E 01	3.857E-02
3.875E 01	1.173E 01	1.176E 01	-4.954E 02	-2.831E 02	-1.530E 02	-1.300E 02	1.066E 03	2.888E 01	3.914E-02	2.895E 01	3.923E-02
3.878E 01	1.198E 01	1.177E 01	-4.981E 02	-2.853E 02	-1.536E 02	-1.317E 02	1.070E 03	2.949E 01	3.997E-02	2.898E 01	3.928E-02
3.901E 01	1.357E 01	1.254E 01	-5.140E 02	-3.002E 02	-1.578E 02	-1.424E 02	1.096E 03	3.341E 01	4.529E-02	3.086E 01	4.182E-02
3.929E 01	1.326E 01	1.350E 01	-5.301E 02	-3.199E 02	-1.640E 02	-1.559E 02	1.129E 03	3.263E 01	4.422E-02	3.383E 01	4.504E-02
3.950E 01	1.302E 01	9.566E 00	-5.392E 02	-3.347E 02	-1.692E 02	-1.656E 02	1.152E 03	3.206E 01	4.345E-02	2.355E 01	3.191E-02
3.978E 01	1.391E 01	4.100E 00	-5.564E 02	-3.562E 02	-1.774E 02	-1.788E 02	1.185E 03	3.424E 01	4.641E-02	1.009E 01	1.368E-02
4.000E 01	1.458E 01	4.088E 00	-5.730E 02	-3.731E 02	-1.844E 02	-1.887E 02	1.211E 03	3.589E 01	4.864E-02	1.006E 01	1.364E-02
4.040E 01	1.681E 01	4.069E 00	-6.047E 02	-4.055E 02	-1.988E 02	-2.068E 02	1.257E 03	4.138E 01	5.609E-02	1.001E 01	1.356E-02
4.041E 01	1.687E 01	4.065E 00	-6.054E 02	-4.064E 02	-1.992E 02	-2.072E 02	1.259E 03	4.152E 01	5.628E-02	1.001E 01	1.356E-02
4.127E 01	2.167E 01	4.017E 00	-6.818E 02	-4.843E 02	-2.338E 02	-2.505E 02	1.360E 03	5.333E 01	7.228E-02	9.887E 00	1.340E-02
4.128E 01	2.172E 01	4.016E 00	-6.827E 02	-4.853E 02	-2.342E 02	-2.511E 02	1.362E 03	5.347E 01	7.247E-02	9.886E 00	1.340E-02
4.134E 01	2.208E 01	4.012E 00	-6.889E 02	-4.917E 02	-2.370E 02	-2.547E 02	1.369E 03	5.436E 01	7.368E-02	9.877E 00	1.339E-02
4.150E 01	2.295E 01	4.565E 00	-7.038E 02	-5.072E 02	-2.440E 02	-2.633E 02	1.388E 03	5.649E 01	7.656E-02	1.124E 01	1.523E-02
4.246E 01	1.489E 01	7.983E 00	-7.582E 02	-6.069E 02	-2.893E 02	-3.177E 02	1.503E 03	3.665E 01	4.967E-02	1.965E 01	2.663E-02
4.406E 01	1.965E 01	1.370E 01	-7.872E 02	-7.826E 02	-3.646E 02	-4.180E 02	1.697E 03	4.836E 01	6.554E-02	3.371E 01	4.569E-02
4.431E 01	2.037E 01	1.403E 01	-7.923E 02	-8.098E 02	-3.756E 02	-4.342E 02	1.727E 03	5.015E 01	6.796E-02	3.454E 01	4.682E-02
4.478E 01	2.177E 01	1.468E 01	-8.030E 02	-8.604E 02	-3.961E 02	-4.643E 02	1.784E 03	5.358E 01	7.261E-02	3.613E 01	4.897E-02
4.480E 01	2.182E 01	1.471E 01	-8.034E 02	-8.625E 02	-3.969E 02	-4.656E 02	1.786E 03	5.372E 01	7.281E-02	3.620E 01	4.906E-02
4.626E 01	1.640E 01	1.671E 01	-7.912E 02	-1.011E 03	-4.573E 02	-5.536E 02	1.966E 03	4.038E 01	5.473E-02	4.114E 01	5.576E-02
4.730E 01	1.253E 01	1.815E 01	-7.401E 02	-1.112E 03	-4.975E 02	-6.144E 02	2.095E 03	3.083E 01	4.179E-02	4.468E 01	6.055E-02
4.731E 01	1.251E 01	1.813E 01	-7.407E 02	-1.112E 03	-4.977E 02	-6.147E 02	2.096E 03	3.078E 01	4.172E-02	4.463E 01	6.049E-02
4.811E 01	1.534E 01	1.523E 01	-6.947E 02	-1.182E 03	-5.270E 02	-6.551E 02	2.196E 03	3.775E 01	5.117E-02	3.749E 01	5.082E-02
4.875E 01	1.290E 01	1.290E 01	-6.521E 02	-1.228E 03	-5.495E 02	-6.787E 02	2.276E 03	3.174E 01	4.302E-02	3.174E 01	4.302E-02
4.928E 01	1.097E 01	1.097E 01	-6.192E 02	-1.259E 03	-5.674E 02	-6.921E 02	2.343E 03	2.701E 01	3.661E-02	2.701E 01	3.661E-02
5.069E 01	8.156E 00	8.156E 00	-5.484E 02	-1.329E 03	-6.119E 02	-7.170E 02	2.521E 03	2.008E 01	2.721E-02	2.008E 01	2.721E-02
5.279E 01	5.050E 00	5.050E 00	-4.797E 02	-1.415E 03	-6.705E 02	-7.443E 02	2.787E 03	1.243E 01	1.685E-02	1.243E 01	1.685E-02
5.329E 01	4.517E 00	4.517E 00	-4.633E 02	-1.433E 03	-6.831E 02	-7.498E 02	2.851E 03	1.112E 01	1.507E-02	1.112E 01	1.507E-02
5.404E 01	4.037E 00	4.037E 00	-4.468E 02	-1.458E 03	-7.010E 02	-7.568E 02	2.946E 03	9.936E 00	1.347E-02	9.936E 00	1.347E-02
5.480E 01	3.550E 00	3.550E 00	-4.321E 02	-1.482E 03	-7.178E 02	-7.638E 02	3.044E 03	8.738E 00	1.184E-02	8.738E 00	1.184E-02
5.576E 01	3.357E 00	3.357E 00	-4.155E 02	-1.509E 03	-7.374E 02	-7.718E 02	3.167E 03	8.263E 00	1.120E-02	8.263E 00	1.120E-02
5.623E 01	3.262E 00	3.262E 00	-3.786E 02	-1.521E 03	-7.455E 02	-7.755E 02	3.209E 03	8.030E 00	1.088E-02	8.030E 00	1.088E-02
5.628E 01	1.750E 00	3.251E 00	-3.776E 02	-1.522E 03	-7.463E 02	-7.759E 02	3.217E 03	4.308E 00	5.838E-03	8.002E 00	1.085E-02
5.642E 01	1.750E 00	3.223E 00	-3.755E 02	-1.525E 03	-7.484E 02	-7.770E 02	3.234E 03	4.308E 00	5.838E-03	7.933E 00	1.075E-02
5.650E 01	3.207E 00	3.207E 00	-3.742E 02	-1.527E 03	-7.496E 02	-7.776E 02	3.245E 03	7.893E 00	1.070E-02	7.893E 00	1.070E-02
5.678E 01	3.150E 00	3.150E 00	-3.701E 02	-1.533E 03	-7.535E 02	-7.798E 02	3.280E 03	7.754E 00	1.051E-02	7.754E 00	1.051E-02
5.701E 01	3.257E 00	3.257E 00	-3.670E 02	-1.538E 03	-7.566E 02	-7.816E 02	3.309E 03	8.017E 00	1.087E-02	8.017E 00	1.087E-02
5.773E 01	3.600E 00	3.600E 00	-3.577E 02	-1.553E 03	-7.658E 02	-7.873E 02	3.402E 03	8.861E 00	1.201E-02	8.861E 00	1.201E-02
5.875E 01	3.075E 00	3.075E 00	-3.499E 02	-1.571E 03	-7.767E 02	-7.948E 02	3.532E 03	7.569E 00	1.026E-02	7.569E 00	1.026E-02
6.076E 01	1.350E 00	1.350E 00	-3.494E 02	-1.596E 03	-7.923E 02	-8.036E 02	3.790E 03	3.323E 00	4.504E-03	3.323E 00	4.504E-03
6.218E 01	2.644E 00	2.644E 00	-3.494E 02	-1.608E 03	-8.001E 02	-8.079E 02	3.972E 03	6.508E 00	8.820E-03	6.508E 00	8.820E-03
6.465E 01	5.599E 00	5.599E 00	-3.494E 02	-1.636E 03	-8.105E 02	-8.254E 02	4.289E 03	1.378E 01	1.868E-02	1.378E 01	1.868E-02
6.502E 01	2.450E 00	6.050E 00	-3.494E 02	-1.641E 03	-8.117E 02	-8.295E 02	4.337E 03	6.031E 00	8.173E-03	1.489E 01	2.018E-02

XABS	P-IB	P-OB	PDA	QOX	W-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.506E 01	2.450E 00	6.098E 00	-3.494E 02	-1.642E 03	-8.118E 02	-8.300E 02	4.342E 03	6.031E 00	8.173E-03	1.501E 01	2.034E-02
6.526E 01	2.506E 00	6.337E 00	-3.494E 02	-1.645E 03	-8.124E 02	-8.323E 02	4.368E 03	6.170E 00	8.362E-03	1.560E 01	2.114E-02
6.692E 01	2.975E 00	2.750E 00	-3.066E 02	-1.669E 03	-8.196E 02	-8.493E 02	4.583E 03	7.323E 00	9.925E-03	6.769E 00	9.174E-03
6.759E 01	2.377E 00	2.167E 00	-2.546E 02	-1.678E 03	-8.235E 02	-8.550E 02	4.665E 03	5.851E 00	7.930E-03	5.335E 00	7.231E-03
6.836E 01	1.690E 00	2.146E 00	-1.965E 02	-1.691E 03	-8.283E 02	-8.624E 02	4.760E 03	4.160E 00	5.638E-03	5.281E 00	7.158E-03
6.908E 01	1.698E 00	2.125E 00	-1.472E 02	-1.705E 03	-8.328E 02	-8.718E 02	4.848E 03	4.180E 00	5.665E-03	5.231E 00	7.089E-03
6.969E 01	1.705E 00	1.765E 00	-1.075E 02	-1.715E 03	-8.362E 02	-8.792E 02	4.922E 03	4.197E 00	5.688E-03	4.345E 00	5.889E-03
7.064E 01	1.289E 00	1.205E 00	-5.947E 01	-1.725E 03	-8.410E 02	-8.839E 02	5.036E 03	3.172E 00	4.299E-03	2.966E 00	4.020E-03
7.107E 01	1.100E 00	1.216E 00	-4.229E 01	-1.727E 03	-8.430E 02	-8.845E 02	5.088E 03	2.708E 00	3.670E-03	2.993E 00	4.057E-03
7.260E 01	1.300E 00	1.255E 00	1.619E 01	-1.742E 03	-8.489E 02	-8.926E 02	5.273E 03	3.201E 00	4.338E-03	3.089E 00	4.187E-03
7.275E 01	1.320E 00	1.153E 00	2.176E 01	-1.743E 03	-8.494E 02	-8.939E 02	5.290E 03	3.249E 00	4.404E-03	2.839E 00	3.848E-03
7.350E 01	1.057E 00	6.450E-01	5.597E 01	-1.754E 03	-8.517E 02	-9.020E 02	5.374E 03	2.601E 00	3.526E-03	1.588E 00	2.152E-03
7.351E 01	1.055E 00	6.423E-01	5.723E 01	-1.754E 03	-8.517E 02	-9.020E 02	5.375E 03	2.598E 00	3.521E-03	1.581E 00	2.143E-03
7.483E 01	5.900E-01	0.000	7.460E 01	-1.774E 03	-8.549E 02	-9.189E 02	5.427E 03	1.452E 00	1.968E-03	0.000	0.000
7.768E 01	3.500E-01	0.000	9.340E 01	-1.778E 03	-8.596E 02	-9.189E 02	5.525E 03	8.615E-01	1.168E-03	0.000	0.000
8.158E 01	4.650E-01	0.000	1.108E 02	-1.782E 03	-8.627E 02	-9.189E 02	5.630E 03	1.145E 00	1.551E-03	0.000	0.000
8.439E 01	4.850E-01	0.000	1.214E 02	-1.783E 03	-8.645E 02	-9.189E 02	5.664E 03	1.194E 00	1.618E-03	0.000	0.000
8.725E 01	4.300E-01	0.000	1.324E 02	-1.787E 03	-8.678E 02	-9.189E 02	5.707E 03	1.058E 00	1.435E-03	0.000	0.000
8.726E 01	4.299E-01	0.000	1.324E 02	-1.787E 03	-8.678E 02	-9.189E 02	5.707E 03	1.058E 00	1.434E-03	0.000	0.000

READING = 0095 BLOCK = 44 TIME = 140.349 MACH 5.2 PT = 299.750 TT = 3081.3 PAGE 6

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.655E 01	9.655E 01	2.699E-03	3.492E-02
4.041E 01	1.341E-01	9.668E 01	2.848E-03	2.792E-02
4.127E 01	1.201E 01	1.087E 02	2.977E-03	3.153E-02
4.128E 01	1.337E-01	1.088E 02	2.846E-03	3.285E-02
4.134E 01	8.592E-01	1.097E 02	2.834E-03	3.348E-02
4.150E 01	2.034E 00	1.117E 02	2.852E-03	3.428E-02
4.246E 01	1.269E 01	1.244E 02	2.927E-03	2.947E-02
4.406E 01	2.146E 01	1.459E 02	3.289E-03	3.269E-02
4.431E 01	3.090E 00	1.490E 02	3.034E-03	3.633E-02
4.478E 01	5.564E 00	1.545E 02	3.009E-03	3.784E-02
4.480E 01	2.340E-01	1.548E 02	3.004E-03	3.796E-02
4.626E 01	1.657E 01	1.713E 02	2.994E-03	3.522E-02
4.730E 01	1.124E 01	1.826E 02	2.942E-03	3.349E-02
4.731E 01	6.052E-02	1.826E 02	2.983E-03	3.302E-02
4.811E 01	8.109E 00	1.907E 02	2.916E-03	3.314E-02
4.875E 01	6.086E 00	1.968E 02	2.856E-03	2.975E-02
4.928E 01	4.755E 00	2.016E 02	2.809E-03	2.673E-02
5.069E 01	1.158E 01	2.131E 02	2.712E-03	2.155E-02
5.279E 01	1.511E 01	2.283E 02	2.691E-03	1.479E-02
5.329E 01	3.263E 00	2.315E 02	2.600E-03	1.383E-02
5.404E 01	4.607E 00	2.361E 02	2.565E-03	1.268E-02
5.480E 01	4.421E 00	2.406E 02	2.542E-03	1.145E-02
5.576E 01	5.242E 00	2.458E 02	2.520E-03	1.088E-02
5.623E 01	1.627E 00	2.474E 02	2.625E-03	9.757E-03
5.628E 01	2.386E-01	2.477E 02	2.475E-03	8.335E-03
5.642E 01	5.866E-01	2.482E 02	2.449E-03	8.339E-03
5.650E 01	3.495E-01	2.486E 02	2.698E-03	9.426E-03
5.678E 01	1.217E 00	2.498E 02	2.482E-03	9.796E-03
5.701E 01	9.329E-01	2.507E 02	2.445E-03	1.011E-02
5.773E 01	2.922E 00	2.537E 02	2.440E-03	1.082E-02
5.875E 01	4.107E 00	2.578E 02	2.461E-03	9.545E-03
6.076E 01	8.555E 00	2.663E 02	2.426E-03	5.243E-03
6.218E 01	6.180E 00	2.725E 02	2.388E-03	8.707E-03
6.465E 01	9.990E 00	2.825E 02	2.552E-03	1.430E-02
6.502E 01	1.503E 00	2.840E 02	2.885E-03	1.065E-02
6.506E 01	1.636E-01	2.842E 02	2.752E-03	1.129E-02
6.526E 01	8.048E-01	2.850E 02	2.758E-03	1.154E-02
6.692E 01	6.158E 00	2.911E 02	2.662E-03	8.527E-03
6.759E 01	1.964E 00	2.931E 02	2.615E-03	7.219E-03
6.836E 01	2.036E 00	2.951E 02	2.576E-03	6.368E-03
6.908E 01	1.793E 00	2.969E 02	2.570E-03	6.340E-03
6.969E 01	1.466E 00	2.984E 02	2.552E-03	5.905E-03
7.064E 01	2.003E 00	3.004E 02	2.490E-03	4.621E-03
7.107E 01	8.033E-01	3.012E 02	2.474E-03	4.368E-03
7.260E 01	2.860E 00	3.041E 02	2.483E-03	4.683E-03
7.275E 01	2.724E-01	3.043E 02	2.478E-03	4.570E-03
7.350E 01	1.182E 00	3.055E 02	2.405E-03	3.447E-03
7.351E 01	2.000E-03	3.055E 02	2.404E-03	3.441E-03
7.483E 01	5.710E-01	3.061E 02	2.334E-03	2.607E-03
7.768E 01	8.077E-01	3.069E 02	2.231E-03	1.745E-03
8.158E 01	7.859E-01	3.077E 02	2.266E-03	2.149E-03
8.439E 01	4.521E-01	3.081E 02	2.262E-03	2.208E-03
8.725E 01	1.823E-01	3.083E 02	2.230E-03	2.004E-03
8.726E 01	0.000	3.083E 02	2.230E-03	2.004E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-175.	(LBF)
MEASURED THRUST	-500.	(LBF)
CALCULATED SPECIFIC IMPULSE	-1843.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-5255.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.0926	
MEASURED THRUST COEFFICIENT	-.2639	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3387.	(LBF)
NET THRUST	-17.	(LBF)
SPECIFIC IMPULSE	-181.	(LBF-SEC/LBM)
THRUST COEFFICIENT	-.0091	

MOMENTUM AND FORCES

INLET FRICTION DRAG	96.5	(LBF)
INLET MOMENTUM CHANGE	-701.2	(LBF)
COMBUSTOR FRICTION DRAG	187.5	(LBF)
COMBUSTOR STRUT DRAG	-0.53	(LBF)
COMBUSTOR MOMENTUM CHANGE	68.	(LBF)
NOZZLE FRICTION DRAG	24.31	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	458.	(LBF)
NOZZLE PRESSURE INTEGRAL	482.	(LBF)
EXTERNAL FRICTION DRAG	43.85	(LBF)
EXTERNAL PRESSURE INTEGRAL	-946.	(LBF)
TOTAL EXTERNAL DRAG	-990.	(LBF)
TOTAL STRUT DRAG	-0.53	(LBF)
CAVITY FORCE	-1326.	(LBF)
CALCULATED LOAD CELL FORCE	-2491.	(LBF)
MEASURED LOAD CELL FORCE	-2816.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2844	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	87.261	(IN)
STRUT LEADING EDGE	56.425	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	65.025	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8655	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2472	
DELTA PT2	0.0915	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3743	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2517	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8854	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9076	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9127	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8832	
ENTHALPY AT PO - SUPERSONIC	41.47	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	61.90	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0053
EQUIVALENCE RATIO	0.164
COMBUSTOR EFFICIENCY	0.282
TOTAL PRESSURE RATIO	0.2939
COMBUSTOR EFFECTIVENESS	0.4967
INJECTOR DISCHARGE COEFFICIENTS	0.7357, 0.4104,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0068
NOZZLE COEFFICIENT - CT	0.9490
PROCESS EFFICIENCY	1.0660
KINETIC ENERGY EFFICIENCY	1.0138

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.270	B
1C	44.300	
2A	48.745	
2C	46.250	
3A	54.035	
3B	56.220	
4	44.770	

Reading 95

$t = 160.15$ sec.

READING = 0095 BLOCK = 66 TIME = 100.149 MACH 5.4 PT = 300.000 TT = 2938.9

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5															
0.000	300.000	2939	651.6(	777)	1.2950	28.919	2558											
0.000	0.384	512	-6.0(	123)	1.3989	28.919	1109	5.170	5736	1.884	0.08044	17.833	0.8655	3264	7.171	183.1		
SPIKE TIP NS		2	0 6															
0.600	14.125	2939	651.6(	777)	1.2949	28.919	2558											
0.600	12.881	2878	633.1(	759)	1.2969	28.919	2533	0.379	960	2.094	0.08044	17.833	0.8655	3368	1.201	190.0		
WIND TUNNEL		3	0 0															
0.000	300.000	2939	651.6(	777)	1.2950	28.919	2558											
0.000	0.410	522	-3.6(	125)	1.3988	28.919	1120	5.112	5726	1.884	0.08422	18.670	0.8655	3414	7.494	182.8		
SPIKE TIP NS		4	0 0															
0.600	14.125	2939	651.6(	777)	1.2949	28.919	2558											
0.600	12.745	2871	631.0(	757)	1.2971	28.919	2530	0.401	1014	2.094	0.08422	18.670	0.8655	3414	1.327	182.8		
INLET THROAT		5	0 4															
40.400	119.257	2812	613.4(	740)	1.2990	28.919	2506											
40.400	13.651	1663	286.3(	415)	1.3398	28.919	1957	2.067	4046	1.934	0.62139	18.670	0.1120	2740	40.907	146.7		
INLET UPNRSK		6	0 3															
40.400	119.257	2812	613.4(	740)	1.2990	28.919	2506											
40.400	12.528	1628	276.5(	406)	1.3416	28.919	1937	2.119	4106	1.934	0.59141	18.670	0.1233	2778	37.736	148.8		
INLET DNNRSK		7	0 4															
40.400	76.613	2812	613.4(	740)	1.2990	28.919	2506											
40.400	65.314	2691	577.4(	705)	1.3029	28.919	2455	0.547	1343	1.965	0.59141	18.670	0.1233	2778	12.343	148.8		
COMBUSTOR	0	8	1 21															
40.410	104.313	2786	616.2(	759)	1.3008	27.855	2543											
40.410	10.714	1599	267.5(	413)	1.3442	27.855	1959	2.133	4177	2.004	0.65242	18.726	0.1121	2739	42.355	146.3	0.09	0.07
COMBUSTOR	0	9	2 21															
41.270	86.357	2720	614.4(	762)	1.3043	26.951	2558											
41.270	13.188	1720	311.1(	461)	1.3397	26.951	2062	1.889	3896	2.064	0.65619	18.775	0.1117	2651	39.725	141.2	0.18	0.04
COMBUSTOR	0	10	3 21															
41.280	88.638	2687	614.3(	753)	1.3058	26.916	2546											
41.280	13.217	1687	311.6(	452)	1.3416	26.916	2044	1.904	3892	2.058	0.65606	18.775	0.1117	2650	39.684	141.1	0.18	0.01
COMBUSTOR	0	11	4 21															
41.345	88.083	2680	613.9(	751)	1.3061	26.911	2543											
41.345	13.404	1691	314.3(	453)	1.3414	26.911	2047	1.891	3871	2.058	0.65643	18.775	0.1117	2643	39.494	140.7	0.18	0.00
COMBUSTOR	0	12	5 21															
41.500	86.363	2676	612.8(	750)	1.3062	26.911	2541											
41.500	14.186	1721	323.4(	462)	1.3401	26.910	2064	1.844	3805	2.059	0.65739	18.775	0.1115	2626	38.677	139.9	0.18	0.00
COMBUSTOR	0	13	6 21															
42.460	50.148	3284	605.8(	931)	1.2769	27.608	2748											
42.460	12.125	2380	318.2(	650)	1.3081	27.611	2368	1.602	3793	2.142	0.65093	18.775	0.1126	2563	38.369	136.5	0.18	0.68
COMBUSTOR	0	14	7 21															
44.065	70.707	2710	593.4(	759)	1.3038	27.012	2550											
44.065	18.211	1955	362.3(	529)	1.3297	27.012	2188	1.555	3401	2.076	0.62943	18.775	0.1165	2528	33.264	134.6	0.18	0.10
COMBUSTOR	0	15	8 21															
44.310	73.999	2622	591.4(	733)	1.3078	26.925	2516											
44.310	19.488	1897	370.5(	513)	1.3328	26.925	2161	1.539	3325	2.064	0.62791	18.775	0.1167	2523	32.443	134.4	0.18	0.02
COMBUSTOR	0	16	9 2															
44.780	73.789	2612	587.0(	729)	1.3081	26.930	2512											
44.780	21.937	1947	384.2(	528)	1.3309	26.929	2187	1.457	3186	2.063	0.62547	18.775	0.1172	2518	30.968	134.1	0.18	0.02
COMBUSTOR	0	17	10 2															
44.800	73.594	2617	586.8(	731)	1.3078	26.935	2513											
44.800	22.042	1954	384.7(	530)	1.3306	26.935	2191	1.452	3180	2.063	0.62515	18.775	0.1173	2518	30.894	134.1	0.18	0.02
COMBUSTOR	0	18	11 9															
46.250	63.461	2529	586.0(	784)	1.3137	24.078	2619											
46.250	30.739	2121	447.2(	646)	1.3278	24.078	2411	1.095	2635	2.256	0.59511	18.965	0.1204	2533	24.373	133.6	0.50	0.06

READING = 0095 BLOCK = 66 TIME = 160.149 MACH 5.2 PT = 300.000 TT = 2938.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	63.433	2531	585.9(785)	1.3136	24.080	2620											
46.260	30.799	2124	447.4(647)	1.3276	24.080	2413	1.091	2632	2.256	0.59482	18.965	0.1245	2534	24.332	133.6	0.50	0.06
COMBUSTOR	0	20	13 4														
47.305	61.225	2732	573.3(850)	1.3040	24.303	2699											
47.305	37.066	2426	467.6(745)	1.3143	24.303	2554	0.900	2300	2.278	0.55258	18.965	0.1340	2628	19.750	138.6	0.50	0.16
COMBUSTOR	0	21	14 2														
47.310	61.281	2728	573.3(849)	1.3042	24.300	2698											
47.310	37.057	2422	467.5(744)	1.3145	24.300	2552	0.902	2301	2.278	0.55357	18.965	0.1338	2626	19.794	138.5	0.50	0.15
COMBUSTOR	0	22	15 4														
48.110	59.040	2933	565.0(916)	1.2944	24.523	2774											
48.110	35.550	2609	451.2(804)	1.3053	24.523	2628	0.908	2386	2.298	0.51595	18.965	0.1435	2713	19.134	143.1	0.50	0.25
COMBUSTOR	0	23	16 6														
48.745	55.572	2694	578.7(929)	1.3077	21.821	2833											
48.745	26.327	2293	426.0(777)	1.3214	21.821	2627	1.052	2764	2.484	0.48235	19.174	0.1552	2774	20.722	144.6	0.85	0.13
COMBUSTOR	0	24	17 2														
48.755	55.537	2696	578.7(930)	1.3076	21.823	2834											
48.755	28.245	2293	425.4(778)	1.3214	21.823	2628	1.054	2770	2.485	0.48172	19.174	0.1554	2775	20.735	144.7	0.85	0.13
COMBUSTOR	0	25	18 4														
49.285	53.895	2795	575.7(966)	1.3029	21.914	2874											
49.285	23.875	2303	388.0(780)	1.3198	21.914	2626	1.167	3065	2.497	0.45052	19.174	0.1662	2843	21.458	148.3	0.85	0.16
COMBUSTOR	0	26	19 4														
50.695	49.164	3073	569.5(1068)	1.2896	22.174	2981											
50.695	19.875	2494	344.3(846)	1.3095	22.175	2706	1.241	3357	2.530	0.38397	19.174	0.1950	2993	20.032	156.1	0.85	0.25
COMBUSTOR	0	27	20 5														
52.795	42.506	3523	556.9(1241)	1.2659	22.510	3139											
52.795	18.800	2953	324.1(1017)	1.2871	22.516	2897	1.178	3413	2.586	0.31657	19.288	0.2379	3191	16.789	165.5	0.86	0.38
COMBUSTOR	0	28	21 3														
53.295	42.900	3479	554.9(1284)	1.2683	22.471	3124											
53.295	15.467	2781	273.4(952)	1.2938	22.477	2821	1.330	3753	2.582	0.30363	19.288	0.2480	3232	17.710	167.6	0.86	0.37
COMBUSTOR	0	29	22 4														
54.045	41.329	3588	552.1(1265)	1.2620	22.583	3157											
54.045	14.639	2868	258.2(983)	1.2891	22.593	2852	1.345	3835	2.592	0.28621	19.288	0.2631	3285	17.057	170.3	0.86	0.40
COMBUSTOR	0	30	23 4														
54.805	39.980	3685	549.1(1302)	1.2561	22.685	3185											
54.805	13.800	2938	241.5(1008)	1.2851	22.698	2876	1.364	3923	2.601	0.27066	19.288	0.2782	3335	16.502	172.9	0.86	0.44
COMBUSTOR	0	31	24 4														
55.760	38.220	3821	545.2(1353)	1.2473	22.830	3221											
55.760	13.149	3061	226.6(1052)	1.2785	22.850	2918	1.368	3993	2.612	0.25363	19.288	0.2969	3394	15.739	175.9	0.86	0.48
COMBUSTOR	0	32	25 5														
56.230	31.282	4360	543.4(1559)	1.2053	23.400	3342											
56.230	12.828	3722	238.2(1300)	1.2389	23.485	3124	1.251	3908	2.654	0.20470	19.288	0.3679	3551	12.431	184.1	0.86	0.66
COMBUSTOR	0	33	26 5														
56.285	33.254	4113	543.2(1465)	1.2258	23.136	3292											
56.285	10.370	3274	174.6(1129)	1.2651	23.186	2980	1.441	4295	2.638	0.20408	19.288	0.3690	3555	13.621	184.3	0.86	0.58
COMBUSTOR	0	34	27 3														
56.425	33.104	4131	542.7(1471)	1.2244	23.156	3295											
56.425	10.323	3292	172.6(1135)	1.2640	23.208	2986	1.441	4303	2.640	0.20265	19.288	0.3716	3562	13.553	184.7	0.86	0.58
COMBUSTOR	0	35	28 5														
56.505	31.626	4376	542.5(1565)	1.2041	23.420	3345											
56.505	12.641	3721	228.2(1299)	1.2386	23.509	3122	1.270	3965	2.654	0.20496	19.288	0.3674	3567	12.630	184.9	0.86	0.67
COMBUSTOR	0	36	29 3														
56.785	31.782	4394	541.5(1572)	1.2026	23.441	3348											
56.785	12.450	3725	219.6(1300)	1.2380	23.535	3121	1.286	4012	2.654	0.20421	19.288	0.3688	3581	12.733	185.7	0.86	0.68
COMBUSTOR	0	37	30 4														
57.011	32.358	4346	540.7(1554)	1.2068	23.392	3339											
57.011	11.736	3619	198.4(1259)	1.2446	23.478	3089	1.340	4139	2.650	0.20390	19.288	0.3693	3591	13.114	186.2	0.86	0.66

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	U	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
57.735	34.729	4126	538.6(1469)	1.2251	23.161	3294											
57.735	9.450	3194	131.3(1097)	1.2682	23.213	2945	1.533	4514	2.635	0.20066	19.288	0.3753	3615	14.076	187.4	0.86	0.58
COMBUSTOR	0	39	32 4														
58.755	32.323	4411	535.5(1579)	1.2012	23.475	3350											
58.755	11.325	3666	178.0(1276)	1.2405	23.579	3097	1.366	4230	2.652	0.19936	19.288	0.3777	3631	13.107	188.3	0.86	0.69
COMBUSTOR	0	40	33 5														
60.765	31.359	4709	529.0(1693)	1.1745	23.821	3398											
60.765	16.087	4272	279.8(1512)	1.1956	23.977	3254	1.085	3531	2.663	0.20632	19.288	0.3650	3621	11.323	187.7	0.86	0.82
COMBUSTOR	0	41	34 4														
62.185	32.271	4652	524.0(1671)	1.1799	23.770	3388											
62.185	15.600	4165	256.9(1469)	1.2045	23.917	3229	1.132	3656	2.658	0.21191	19.288	0.3553	3611	12.039	187.2	0.86	0.80
COMBUSTOR	0	42	35 3														
64.649	30.321	4637	513.7(1664)	1.1798	23.780	3382											
64.649	15.300	4180	262.4(1475)	1.2030	23.920	3233	1.097	3546	2.662	0.20087	19.288	0.3749	3595	11.088	186.4	0.86	0.80
COMBUSTOR	0	43	36 4														
65.025	28.062	4658	511.9(1672)	1.1764	23.808	3383											
65.025	15.277	4260	280.2(1507)	1.1962	23.947	3253	1.033	3360	2.668	0.18674	19.288	0.4032	3592	9.752	186.2	0.86	0.81
COMBUSTOR REGEN		44	37 21														
65.025	28.062	4808	618.5(1736)	1.1669	23.704	3430											
65.025	20.437	4610	493.6(1653)	1.1745	23.802	3363	0.743	2500	2.691	0.18674	19.288	0.4032	3610	7.256	187.2	0.86	0.81
NOZZLE AE		45	38 4														
87.261	28.062	4658	511.9(1628)	1.1764	23.808	3383											
87.261	0.844	2412	-503.9(784)	1.2870	24.079	2532	2.816	7129	2.668	0.03887	19.288	1.9372	4693	4.307	243.3	0.86	0.81
NOZZLE PO		46	39 4														
87.261	28.062	4658	511.9(1628)	1.1764	23.808	3383											
87.261	0.410	2047	-636.4(652)	1.3013	24.080	2345	3.232	7580	2.668	0.02366	19.288	3.1826	4878	2.787	252.9	0.86	0.81
NOZZLE AE REGEN		47	40 4														
87.261	28.062	4808	618.5(1736)	1.1669	23.704	3430											
87.261	0.890	2592	-436.6(851)	1.2802	24.079	2617	2.776	7266	2.691	0.03887	19.288	1.9372	4797	4.390	248.7	0.86	0.81
NOZZLE PO REGEN		48	41 4														
87.261	28.062	4808	618.5(1736)	1.1669	23.704	3430											
87.261	0.410	2179	-588.9(700)	1.2959	24.080	2415	3.219	7773	2.691	0.02279	19.288	3.3047	5007	2.752	259.6	0.86	0.81
FICTIVE COMBUSTR		68	61 0														
65.025	119.257	5130	511.9(1856)	1.1636	24.333	3492											
65.025	0.410	1752	-1003.0(540)	1.3073	24.818	2142	4.064	8707	2.552	0.03272	19.288	2.3017	5461	4.427	283.1	0.86	1.00
FICTIVE NOZZLE		69	62 0														
87.261	17.725	4586	484.0(1643)	1.1738	23.800	3353											
87.261	1.050	2756	-374.0(913)	1.2739	24.078	2693	2.433	6552	2.701	0.03887	19.288	1.9371	4449	3.958	230.6	0.86	0.81

READING = 0095 BLOCK = 66 TIME = 160.149 MACH 5.2 PT = 300.000 TT = 2938.9

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.981E-01	1.085E 00	0.000	-3.464E-01	0.000	0.000	0.000	2.470E-02	2.646E 00	3.617E-03	0.000	0.000
1.836E 01	1.085E 00	0.000	-3.602E 01	0.000	0.000	0.000	1.634E 02	2.646E 00	3.617E-03	0.000	0.000
3.070E 01	1.835E 00	0.000	-1.544E 02	0.000	0.000	0.000	5.053E 02	4.475E 00	6.117E-03	0.000	0.000
3.508E 01	3.084E 00	0.000	-3.138E 02	0.000	0.000	0.000	6.804E 02	7.521E 00	1.028E-02	0.000	0.000
3.516E 01	3.102E 00	4.350E 00	-3.614E 02	0.000	0.000	0.000	6.841E 02	7.564E 00	1.034E-02	1.061E 01	1.450E-02
3.517E 01	3.103E 00	4.335E 00	-3.615E 02	0.000	0.000	0.000	6.843E 02	7.568E 00	1.034E-02	1.057E 01	1.445E-02
3.555E 01	3.185E 00	3.414E 00	-3.676E 02	0.000	0.000	0.000	7.225E 02	7.768E 00	1.062E-02	8.326E 00	1.138E-02
3.583E 01	3.157E 00	2.725E 00	-3.759E 02	-3.495E 02	-3.495E 02	0.000	7.515E 02	7.700E 00	1.052E-02	6.646E 00	9.083E-03
3.606E 01	3.135E 00	3.702E 00	-3.825E 02	-3.541E 02	-3.541E 02	0.000	7.745E 02	7.646E 00	1.045E-02	9.029E 00	1.234E-02
3.648E 01	3.459E 00	5.525E 00	-3.913E 02	-3.627E 02	-3.627E 02	0.000	8.183E 02	8.435E 00	1.153E-02	1.347E 01	1.842E-02
3.701E 01	3.300E 00	7.826E 00	-4.019E 02	-4.227E 02	-3.742E 02	-4.854E 01	8.743E 02	8.048E 00	1.100E-02	1.909E 01	2.609E-02
3.729E 01	4.249E 00	9.062E 00	-4.078E 02	-4.437E 02	-3.806E 02	-6.307E 01	9.048E 02	1.036E 01	1.416E-02	2.210E 01	3.021E-02
3.803E 01	6.697E 00	1.086E 01	-4.480E 02	-4.980E 02	-3.981E 02	-9.993E 01	9.851E 02	1.633E 01	2.233E-02	2.650E 01	3.621E-02
3.831E 01	8.734E 00	1.156E 01	-4.673E 02	-5.198E 02	-4.056E 02	-1.141E 02	1.017E 03	2.130E 01	2.911E-02	2.820E 01	3.854E-02
3.875E 01	1.184E 01	1.183E 01	-5.029E 02	-5.549E 02	-4.191E 02	-1.358E 02	1.066E 03	2.888E 01	3.948E-02	2.885E 01	3.943E-02
3.878E 01	1.209E 01	1.185E 01	-5.057E 02	-5.578E 02	-4.203E 02	-1.375E 02	1.070E 03	2.949E 01	4.031E-02	2.890E 01	3.950E-02
3.901E 01	1.370E 01	1.258E 01	-5.218E 02	-5.771E 02	-4.284E 02	-1.486E 02	1.096E 03	3.341E 01	4.567E-02	3.069E 01	4.195E-02
3.929E 01	1.338E 01	1.351E 01	-5.382E 02	-6.025E 02	-4.397E 02	-1.627E 02	1.129E 03	3.263E 01	4.460E-02	3.295E 01	4.504E-02
3.950E 01	1.315E 01	9.625E 00	-5.475E 02	-6.215E 02	-4.487E 02	-1.728E 02	1.152E 03	3.207E 01	4.383E-02	2.347E 01	3.208E-02
3.978E 01	1.410E 01	4.225E 00	-5.648E 02	-6.489E 02	-4.623E 02	-1.865E 02	1.185E 03	3.439E 01	4.700E-02	1.030E 01	1.408E-02
4.000E 01	1.482E 01	4.253E 00	-5.816E 02	-6.704E 02	-4.736E 02	-1.968E 02	1.211E 03	3.613E 01	4.939E-02	1.037E 01	1.418E-02
4.040E 01	1.704E 01	4.306E 00	-6.134E 02	-7.118E 02	-4.961E 02	-2.157E 02	1.257E 03	4.162E 01	5.688E-02	1.050E 01	1.435E-02
4.041E 01	1.712E 01	4.307E 00	-6.141E 02	-7.128E 02	-4.967E 02	-2.162E 02	1.259E 03	4.176E 01	5.707E-02	1.050E 01	1.436E-02
4.127E 01	2.196E 01	4.420E 00	-6.903E 02	-8.136E 02	-5.508E 02	-2.629E 02	1.360E 03	5.355E 01	7.319E-02	1.078E 01	1.473E-02
4.128E 01	2.201E 01	4.421E 00	-6.913E 02	-8.149E 02	-5.514E 02	-2.635E 02	1.362E 03	5.368E 01	7.337E-02	1.078E 01	1.474E-02
4.134E 01	2.238E 01	4.430E 00	-6.974E 02	-8.233E 02	-5.559E 02	-2.675E 02	1.369E 03	5.458E 01	7.459E-02	1.080E 01	1.477E-02
4.150E 01	2.325E 01	5.121E 00	-7.122E 02	-8.437E 02	-5.666E 02	-2.771E 02	1.388E 03	5.670E 01	7.750E-02	1.249E 01	1.707E-02
4.246E 01	1.485E 01	9.401E 00	-7.624E 02	-9.761E 02	-6.373E 02	-3.388E 02	1.503E 03	3.622E 01	4.950E-02	2.293E 01	3.134E-02
4.406E 01	1.987E 01	1.656E 01	-7.767E 02	-1.208E 03	-7.563E 02	-4.521E 02	1.697E 03	4.845E 01	6.622E-02	4.038E 01	5.519E-02
4.431E 01	2.063E 01	1.834E 01	-7.785E 02	-1.246E 03	-7.738E 02	-4.721E 02	1.727E 03	5.032E 01	6.877E-02	4.474E 01	6.115E-02
4.478E 01	2.210E 01	2.177E 01	-7.784E 02	-1.327E 03	-8.068E 02	-5.205E 02	1.784E 03	5.390E 01	7.367E-02	5.310E 01	7.258E-02
4.480E 01	2.216E 01	2.192E 01	-7.782E 02	-1.331E 03	-8.082E 02	-5.228E 02	1.786E 03	5.405E 01	7.388E-02	5.346E 01	7.307E-02
4.625E 01	2.898E 01	3.250E 01	-7.193E 02	-1.633E 03	-9.057E 02	-7.268E 02	1.965E 03	7.067E 01	9.659E-02	7.927E 01	1.083E-01
4.626E 01	2.902E 01	3.257E 01	-7.187E 02	-1.635E 03	-9.064E 02	-7.285E 02	1.966E 03	7.078E 01	9.674E-02	7.945E 01	1.086E-01
4.730E 01	3.393E 01	4.020E 01	-6.157E 02	-1.872E 03	-9.728E 02	-8.993E 02	2.095E 03	8.276E 01	1.131E-01	9.804E 01	1.340E-01
4.731E 01	3.396E 01	4.016E 01	-6.176E 02	-1.873E 03	-9.731E 02	-9.001E 02	2.096E 03	8.281E 01	1.132E-01	9.794E 01	1.339E-01
4.811E 01	3.754E 01	3.356E 01	-5.240E 02	-2.031E 03	-1.022E 03	-1.009E 03	2.196E 03	9.155E 01	1.251E-01	8.185E 01	1.119E-01
4.874E 01	2.833E 01	2.833E 01	-4.331E 02	-2.125E 03	-1.059E 03	-1.065E 03	2.275E 03	6.909E 01	9.442E-02	6.909E 01	9.442E-02
4.875E 01	2.824E 01	2.824E 01	-4.316E 02	-2.126E 03	-1.060E 03	-1.066E 03	2.276E 03	6.888E 01	9.415E-02	6.888E 01	9.415E-02
4.928E 01	2.387E 01	2.387E 01	-3.596E 02	-2.182E 03	-1.090E 03	-1.092E 03	2.343E 03	5.823E 01	7.958E-02	5.823E 01	7.958E-02
5.060E 01	1.987E 01	1.987E 01	-1.979E 02	-2.302E 03	-1.167E 03	-1.134E 03	2.521E 03	4.847E 01	6.625E-02	4.847E 01	6.625E-02
5.279E 01	1.880E 01	1.880E 01	1.503E 01	-2.470E 03	-1.272E 03	-1.198E 03	2.787E 03	4.585E 01	6.267E-02	4.585E 01	6.267E-02
5.329E 01	1.547E 01	1.547E 01	5.957E 01	-2.508E 03	-1.295E 03	-1.213E 03	2.851E 03	3.772E 01	5.156E-02	3.772E 01	5.156E-02
5.404E 01	1.464E 01	1.464E 01	1.178E 02	-2.563E 03	-1.328E 03	-1.235E 03	2.946E 03	3.570E 01	4.880E-02	3.570E 01	4.880E-02
5.480E 01	1.380E 01	1.380E 01	1.729E 02	-2.621E 03	-1.361E 03	-1.260E 03	3.044E 03	3.366E 01	4.600E-02	3.366E 01	4.600E-02
5.576E 01	1.315E 01	1.315E 01	2.374E 02	-2.695E 03	-1.399E 03	-1.296E 03	3.167E 03	3.207E 01	4.383E-02	3.207E 01	4.383E-02
5.623E 01	1.283E 01	1.283E 01	3.971E 02	-2.730E 03	-1.414E 03	-1.316E 03	3.209E 03	3.129E 01	4.276E-02	3.129E 01	4.276E-02
5.628E 01	7.950E 00	1.279E 01	4.008E 02	-2.734E 03	-1.416E 03	-1.318E 03	3.217E 03	1.939E 01	2.650E-02	3.120E 01	4.264E-02
5.642E 01	7.950E 00	1.270E 01	4.091E 02	-2.743E 03	-1.419E 03	-1.324E 03	3.234E 03	1.939E 01	2.650E-02	3.096E 01	4.232E-02
5.650E 01	1.264E 01	1.264E 01	4.141E 02	-2.749E 03	-1.421E 03	-1.327E 03	3.245E 03	3.083E 01	4.214E-02	3.083E 01	4.214E-02
5.678E 01	1.245E 01	1.245E 01	4.305E 02	-2.767E 03	-1.429E 03	-1.338E 03	3.280E 03	3.036E 01	4.150E-02	3.036E 01	4.150E-02
5.701E 01	1.174E 01	1.174E 01	4.423E 02	-2.781E 03	-1.434E 03	-1.347E 03	3.309E 03	2.862E 01	3.912E-02	2.862E 01	3.912E-02
5.773E 01	9.450E 00	9.450E 00	4.710E 02	-2.823E 03	-1.451E 03	-1.373E 03	3.402E 03	2.305E 01	3.150E-02	2.305E 01	3.150E-02
5.875E 01	1.132E 01	1.132E 01	4.951E 02	-2.882E 03	-1.471E 03	-1.411E 03	3.532E 03	2.762E 01	3.775E-02	2.762E 01	3.775E-02
6.076E 01	1.609E 01	1.609E 01	4.983E 02	-3.008E 03	-1.507E 03	-1.501E 03	3.790E 03	3.923E 01	5.363E-02	3.923E 01	5.363E-02
6.218E 01	1.560E 01	1.560E 01	4.983E 02	-3.104E 03	-1.538E 03	-1.567E 03	3.972E 03	3.805E 01	5.200E-02	3.805E 01	5.200E-02

XABS	P-IB	P-OB	PDA	GOX	G-IB	G-OB	CAWALL	P-IB/PSO	P-IB/P10	P-OB/PSO	P-OB/P10
6.465E 01	1.530E 01	1.530E 01	4.983E 02	-3.304E 03	-1.621E 03	-1.683E 03	4.289E 03	3.731E 01	5.100E-02	3.731E 01	5.100E-02
6.502E 01	1.530E 01	1.525E 01	4.983E 02	-3.338E 03	-1.637E 03	-1.701E 03	4.337E 03	3.731E 01	5.100E-02	3.720E 01	5.085E-02
6.506E 01	1.530E 01	1.525E 01	4.963E 02	-3.342E 03	-1.639E 03	-1.703E 03	4.342E 03	3.731E 01	5.100E-02	3.719E 01	5.063E-02
6.526E 01	1.434E 01	1.522E 01	4.983E 02	-3.360E 03	-1.648E 03	-1.712E 03	4.368E 03	3.497E 01	4.779E-02	3.713E 01	5.075E-02
6.692E 01	6.350E 00	6.487E 00	6.169E 02	-3.484E 03	-1.706E 03	-1.778E 03	4.583E 03	1.549E 01	2.117E-02	1.582E 01	2.163E-02
6.759E 01	4.787E 00	6.472E 00	7.387E 02	-3.524E 03	-1.722E 03	-1.802E 03	4.665E 03	1.167E 01	1.596E-02	1.579E 01	2.158E-02
6.836E 01	2.990E 00	4.802E 00	8.677E 02	-3.569E 03	-1.737E 03	-1.831E 03	4.760E 03	7.292E 00	9.967E-03	1.171E 01	1.601E-02
6.908E 01	2.367E 00	3.240E 00	9.529E 02	-3.611E 03	-1.749E 03	-1.862E 03	4.848E 03	5.774E 00	7.891E-03	7.902E 00	1.080E-02
6.969E 01	1.840E 00	2.452E 00	1.006E 03	-3.645E 03	-1.758E 03	-1.887E 03	4.922E 03	4.487E 00	6.133E-03	5.980E 00	8.174E-03
7.064E 01	1.472E 00	1.225E 00	1.062E 03	-3.687E 03	-1.770E 03	-1.918E 03	5.036E 03	3.589E 00	4.906E-03	2.988E 00	4.083E-03
7.107E 01	1.305E 00	1.260E 00	1.081E 03	-3.703E 03	-1.775E 03	-1.928E 03	5.088E 03	3.183E 00	4.350E-03	3.073E 00	4.200E-03
7.260E 01	1.815E 00	1.385E 00	1.151E 03	-3.749E 03	-1.790E 03	-1.959E 03	5.273E 03	4.427E 00	6.050E-03	3.378E 00	4.617E-03
7.275E 01	1.865E 00	1.251E 00	1.158E 03	-3.753E 03	-1.791E 03	-1.962E 03	5.290E 03	4.548E 00	6.217E-03	3.051E 00	4.169E-03
7.350E 01	1.699E 00	5.800E-01	1.200E 03	-3.775E 03	-1.797E 03	-1.977E 03	5.374E 03	4.144E 00	5.664E-03	1.415E 00	1.933E-03
7.351E 01	1.698E 00	5.764E-01	1.202E 03	-3.775E 03	-1.797E 03	-1.977E 03	5.375E 03	4.142E 00	5.661E-03	1.406E 00	1.921E-03
7.483E 01	1.405E 00	0.000	1.234E 03	-3.816E 03	-1.807E 03	-2.009E 03	5.427E 03	3.427E 00	4.683E-03	0.000	0.000
7.768E 01	1.415E 00	0.000	1.291E 03	-3.831E 03	-1.822E 03	-2.009E 03	5.525E 03	3.451E 00	4.717E-03	0.000	0.000
8.158E 01	9.450E-01	0.000	1.341E 03	-3.845E 03	-1.836E 03	-2.009E 03	5.630E 03	2.305E 00	3.150E-03	0.000	0.000
8.439E 01	9.450E-01	0.000	1.362E 03	-3.857E 03	-1.847E 03	-2.009E 03	5.684E 03	2.305E 00	3.150E-03	0.000	0.000
8.725E 01	1.205E 00	0.000	1.388E 03	-3.876E 03	-1.867E 03	-2.009E 03	5.707E 03	2.939E 00	4.017E-03	0.000	0.000
8.726E 01	1.206E 00	0.000	1.388E 03	-3.876E 03	-1.867E 03	-2.009E 03	5.707E 03	2.940E 00	4.018E-03	0.000	0.000

READING = 0095 BLOCK = 66 TIME = 160.149 MACH 5.2 PT = 300.000 TT = 2938.9

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.564E 01	9.564E 01	2.603E-03	3.478E-02
4.041E 01	1.336E-01	9.577E 01	2.830E-03	2.852E-02
4.127E 01	1.204E 01	1.078E 02	2.940E-03	3.249E-02
4.128E 01	1.328E-01	1.079E 02	2.776E-03	3.417E-02
4.134E 01	8.472E-01	1.088E 02	2.757E-03	3.467E-02
4.150E 01	2.002E 00	1.108E 02	2.774E-03	3.581E-02
4.246E 01	1.244E 01	1.232E 02	2.833E-03	3.150E-02
4.406E 01	2.116E 01	1.444E 02	3.250E-03	3.497E-02
4.431E 01	3.026E 00	1.474E 02	2.938E-03	4.037E-02
4.478E 01	5.299E 00	1.527E 02	2.892E-03	4.360E-02
4.480E 01	2.204E-01	1.529E 02	2.895E-03	4.366E-02
4.625E 01	1.539E 01	1.683E 02	3.359E-03	4.459E-02
4.626E 01	9.751E-02	1.684E 02	3.037E-03	5.036E-02
4.730E 01	8.689E 00	1.771E 02	3.051E-03	5.184E-02
4.731E 01	4.408E-02	1.772E 02	3.172E-03	4.946E-02
4.811E 01	6.112E 00	1.833E 02	3.128E-03	4.988E-02
4.874E 01	5.223E 00	1.885E 02	3.469E-03	4.150E-02
4.875E 01	8.559E-02	1.886E 02	3.123E-03	4.741E-02
4.928E 01	4.331E 00	1.929E 02	3.053E-03	4.487E-02
5.069E 01	1.112E 01	2.040E 02	2.986E-03	4.012E-02
5.279E 01	1.481E 01	2.189E 02	3.057E-03	3.571E-02
5.320E 01	3.435E 00	2.223E 02	3.193E-03	3.051E-02
5.404E 01	5.273E 00	2.276E 02	3.137E-03	2.908E-02
5.480E 01	5.139E 00	2.327E 02	3.152E-03	2.811E-02
5.576E 01	6.246E 00	2.390E 02	3.159E-03	2.677E-02
5.623E 01	1.911E 00	2.409E 02	3.160E-03	2.429E-02
5.628E 01	2.984E-01	2.412E 02	3.343E-03	2.049E-02
5.642E 01	7.937E-01	2.420E 02	3.230E-03	2.115E-02
5.650E 01	4.502E-01	2.424E 02	3.489E-03	2.198E-02
5.678E 01	1.547E 00	2.440E 02	3.352E-03	2.235E-02
5.701E 01	1.247E 00	2.452E 02	3.339E-03	2.179E-02
5.773E 01	4.163E 00	2.494E 02	3.271E-03	1.971E-02
5.875E 01	5.737E 00	2.551E 02	3.186E-03	2.225E-02
6.076E 01	1.032E 01	2.654E 02	3.368E-03	2.446E-02
6.218E 01	7.259E 00	2.727E 02	3.454E-03	2.365E-02
6.465E 01	1.264E 01	2.853E 02	3.466E-03	2.203E-02
6.502E 01	1.759E 00	2.871E 02	3.523E-03	2.175E-02
6.506E 01	1.784E-01	2.873E 02	3.600E-03	2.210E-02
6.526E 01	9.102E-01	2.882E 02	3.591E-03	2.197E-02
6.692E 01	7.868E 00	2.960E 02	3.426E-03	1.515E-02
6.759E 01	2.966E 00	2.990E 02	3.402E-03	1.399E-02
6.836E 01	3.153E 00	3.021E 02	3.344E-03	1.104E-02
6.908E 01	2.529E 00	3.047E 02	3.292E-03	8.814E-03
6.969E 01	1.842E 00	3.065E 02	3.253E-03	7.292E-03
7.064E 01	2.346E 00	3.089E 02	3.187E-03	5.186E-03
7.107E 01	9.158E-01	3.098E 02	3.178E-03	4.993E-03
7.260E 01	3.409E 00	3.132E 02	3.202E-03	5.865E-03
7.275E 01	3.365E-01	3.135E 02	3.197E-03	5.750E-03
7.350E 01	1.498E 00	3.150E 02	3.150E-03	4.549E-03
7.351E 01	2.606E-03	3.150E 02	3.150E-03	4.543E-03
7.483E 01	8.884E-01	3.159E 02	3.171E-03	5.306E-03
7.768E 01	1.784E 00	3.177E 02	3.156E-03	5.305E-03
8.158E 01	1.694E 00	3.194E 02	3.080E-03	3.890E-03
8.439E 01	7.710E-01	3.202E 02	3.066E-03	3.870E-03
8.725E 01	3.443E-01	3.205E 02	3.086E-03	4.628E-03
8.726E 01	0.000	3.205E 02	3.086E-03	4.630E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1000.	(LBF)
MEASURED THRUST	770.	(LBF)
CALCULATED SPECIFIC IMPULSE	1931.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1487.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5209	
MEASURED THRUST COEFFICIENT	0.4012	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4548.	(LBF)
NET THRUST	1099.	(LBF)
SPECIFIC IMPULSE	2123.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5727	

MOMENTUM AND FORCES

INLET FRICTION DRAG	95.6	(LBF)
INLET MOMENTUM CHANGE	-709.0	(LBF)
COMBUSTOR FRICTION DRAG	191.4	(LBF)
COMBUSTOR STRUT DRAG	14.03	(LBF)
COMBUSTOR MOMENTUM CHANGE	852.	(LBF)
NOZZLE FRICTION DRAG	33.44	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	856.	(LBF)
NOZZLE PRESSURE INTEGRAL	890.	(LBF)
EXTERNAL FRICTION DRAG	42.35	(LBF)
EXTERNAL PRESSURE INTEGRAL	-950.	(LBF)
TOTAL EXTERNAL DRAG	-993.	(LBF)
TOTAL STRUT DRAG	14.03	(LBF)
CAVITY FORCE	-1410.	(LBF)
CALCULATED LOAD CELL FORCE	-1403.	(LBF)
MEASURED LOAD CELL FORCE	-1633.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -148.5, -122.4,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2849	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	87.261	(IN)
STRUT LEADING EDGE	56.425	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	65.025	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8655	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2509	
DELTA PT2	0.0905	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3975	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2554	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8997	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9142	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.8974	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8657	
ENTHALPY AT PO - SUPERSONIC	25.45	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	46.24	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0276
EQUIVALENCE RATIO	0.857
COMBUSTOR EFFICIENCY	0.814
TOTAL PRESSURE RATIO	0.2353
COMBUSTOR EFFECTIVENESS	0.7848

INJECTOR DISCHARGE COEFFICIENTS 0.9194, 0.4712, 0.9430, 0.7862

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9480
NOZZLE COEFFICIENT - CT	0.8702
PROCESS EFFICIENCY	0.8854
KINETIC ENERGY EFFICIENCY	0.8833

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.270	B
1C	44.300	
2A	48.745	D
2C	46.250	E
3A	54.035	
3B	56.220	
4	44.770	

Reading 95

t = 169.15 sec.

2-28-75

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A*	W	A/AC	FUPIP	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	300.250	2934	650.0(776)	1.2952	28.919	2556											
0.000	0.384	511	-6.3(123)	1.3989	28.919	1108	5.171	5731	1.883	0.08061	17.871	0.8655	3268	7.179	182.9		
SPIKE TIP NS		2	0 6														
0.600	14.175	2934	650.0(776)	1.2951	28.919	2556											
0.600	12.933	2873	631.7(758)	1.2970	28.919	2531	0.378	957	2.093	0.08061	17.871	0.8655	3399	1.199	190.2		
WIND TUNNEL		3	0 0														
0.000	300.250	2934	650.0(776)	1.2952	28.919	2556											
0.000	0.412	521	-3.8(125)	1.3988	28.919	1119	5.109	5720	1.883	0.08461	18.757	0.8655	3426	7.521	182.6		
SPIKE TIP NS		4	0 0														
0.600	14.175	2934	650.0(776)	1.2951	28.919	2556											
0.600	12.789	2866	629.5(756)	1.2973	28.919	2528	0.401	1013	2.093	0.08461	18.757	0.8655	3426	1.332	182.6		
INLET THROAT		5	0 4														
40.400	113.181	2827	617.9(744)	1.2986	28.919	2512											
40.400	14.337	1717	300.7(430)	1.3373	28.919	1987	2.005	3984	1.939	0.62269	18.757	0.1120	2734	40.466	145.8		
INLET UPNRSK		6	0 3														
40.400	113.181	2827	617.9(744)	1.2986	28.919	2512											
40.400	13.198	1661	291.1(420)	1.3389	28.919	1967	2.056	4044	1.939	0.59416	18.757	0.1233	2774	37.343	147.9		
INLET DNNRSK		7	0 4														
40.400	76.251	2827	617.9(744)	1.2986	28.919	2512											
40.400	62.583	2701	580.4(708)	1.3026	28.919	2459	0.557	1370	1.966	0.59416	18.757	0.1233	2774	12.651	147.9		
COMBUSTOR	0	8	1 21														
40.410	96.254	2801	622.4(768)	1.3005	27.703	2557											
40.410	10.562	1636	277.5(425)	1.3425	27.703	1985	2.093	4154	2.021	0.65574	18.822	0.1121	2733	42.333	145.2	0.11	0.07
COMBUSTOR	0	9	2 21														
41.270	81.092	2732	621.4(771)	1.3041	26.798	2571											
41.270	12.671	1739	317.9(469)	1.3391	26.798	2078	1.875	3897	2.079	0.65954	18.871	0.1117	2648	39.944	140.3	0.19	0.04
COMBUSTOR	0	10	3 21														
41.280	83.249	2699	621.4(761)	1.3056	26.763	2558											
41.280	12.695	1704	318.3(459)	1.3410	26.763	2060	1.890	3894	2.074	0.65941	18.871	0.1117	2647	39.906	140.3	0.19	0.01
COMBUSTOR	0	11	4 21														
41.345	82.815	2693	621.0(759)	1.3059	26.758	2556											
41.345	12.855	1708	320.9(460)	1.3409	26.758	2063	1.879	3875	2.073	0.65978	18.871	0.1117	2641	39.736	139.9	0.19	0.00
COMBUSTOR	0	12	5 21														
41.500	82.171	2689	620.1(758)	1.3061	26.757	2555											
41.500	14.051	1747	332.8(472)	1.3392	26.757	2085	1.818	3791	2.073	0.66075	18.871	0.1115	2625	36.932	139.1	0.19	0.00
COMBUSTOR	0	13	6 21														
42.460	60.967	3082	613.9(875)	1.2874	27.204	2693											
42.460	15.308	2236	347.2(613)	1.3161	27.205	2319	1.575	3652	2.126	0.65425	18.871	0.1126	2584	37.136	136.9	0.19	0.41
COMBUSTOR	0	14	7 3														
44.065	69.975	2988	600.9(846)	1.2914	27.144	2658											
44.065	32.500	2504	447.1(695)	1.3076	27.144	2449	1.133	2774	2.108	0.63265	18.871	0.1165	2597	27.278	137.6	0.19	0.36
COMBUSTOR	0	15	8 3														
44.310	69.461	3004	598.6(851)	1.2905	27.170	2664											
44.310	33.967	2549	453.6(709)	1.3057	27.171	2468	1.092	2694	2.110	0.63112	18.871	0.1167	2596	26.421	137.5	0.19	0.38
COMBUSTOR	0	16	9 3														
44.780	68.715	3006	593.2(851)	1.2902	27.190	2663											
44.780	36.781	2605	465.2(726)	1.3036	27.190	2492	1.015	2530	2.110	0.62867	18.871	0.1172	2588	24.722	137.2	0.19	0.40
COMBUSTOR	0	17	10 2														
44.800	68.669	3005	593.0(851)	1.2902	27.190	2663											
44.800	36.901	2607	465.8(726)	1.3036	27.191	2493	1.012	2523	2.110	0.62834	18.871	0.1173	2588	24.634	137.1	0.19	0.40
COMBUSTOR	0	18	11 12														
46.250	64.451	2537	592.6(806)	1.3140	23.494	2656											
46.250	36.691	2214	479.6(693)	1.3251	23.494	2491	0.955	2378	2.300	0.59931	19.099	0.1244	2581	22.151	135.1	0.57	0.06

READING = 0095 BLOCK = 76 TIME = 169.149 MACH 5.2 PT = 300.250 TT = 2955.8 PAGE 2

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	64.430	2538	592.5(806)	1.3139	23.495	2657											
46.260	36.689	2215	479.4(694)	1.3250	23.495	2492	0.954	2378	2.300	0.59901	19.099	0.1245	2581	22.136	135.2	0.57	0.06
COMBUSTOR	0	20	13 4														
47.305	61.764	2693	577.0(857)	1.3063	23.677	2718											
47.305	36.538	2377	465.5(747)	1.3170	23.678	2564	0.922	2363	2.319	0.55647	19.099	0.1340	2657	20.432	139.1	0.57	0.13
COMBUSTOR	0	21	14 2														
47.310	61.813	2688	576.9(856)	1.3065	23.673	2716											
47.310	36.518	2372	465.3(745)	1.3172	23.673	2562	0.923	2364	2.318	0.55747	19.099	0.1338	2654	20.477	139.0	0.57	0.13
COMBUSTOR	0	22	15 4														
48.110	59.226	2849	566.5(910)	1.2987	23.852	2777											
48.110	35.126	2522	449.8(794)	1.3098	23.853	2624	0.921	2417	2.336	0.51958	19.099	0.1435	2726	19.518	142.7	0.57	0.20
COMBUSTOR	0	23	16 9														
48.745	55.627	2509	583.3(901)	1.3170	20.701	2817											
48.745	27.385	2110	426.6(745)	1.3311	20.701	2597	1.079	2801	2.554	0.48705	19.361	0.1552	2774	21.200	143.3	1.02	0.09
COMBUSTOR	0	24	17 2														
48.755	55.590	2511	583.2(902)	1.3169	20.703	2818											
48.755	27.322	2111	426.0(745)	1.3310	20.703	2597	1.080	2805	2.555	0.48642	19.361	0.1554	2775	21.203	143.3	1.02	0.09
COMBUSTOR	0	25	18 4														
49.285	53.758	2612	579.2(940)	1.3122	20.791	2863											
49.285	24.000	2147	396.3(758)	1.3284	20.791	2612	1.158	3025	2.570	0.45492	19.361	0.1662	2842	21.389	146.8	1.02	0.11
COMBUSTOR	0	26	19 5														
50.695	48.330	2952	569.4(1070)	1.2961	21.093	3003											
50.695	22.312	2465	372.6(875)	1.3127	21.093	2762	1.136	3138	2.614	0.38771	19.361	0.1950	3003	18.909	155.1	1.02	0.20
COMBUSTOR	0	27	20 4														
52.795	43.310	3266	551.8(1195)	1.2802	21.303	3124											
52.795	17.350	2657	299.8(949)	1.3015	21.306	2841	1.250	3551	2.660	0.31964	19.475	0.2379	3207	17.640	164.7	1.02	0.29
COMBUSTOR	0	28	21 4														
53.295	44.849	3155	549.0(1152)	1.2856	21.212	3084											
53.295	13.650	2400	240.9(849)	1.3119	21.214	2716	1.445	3926	2.647	0.30658	19.475	0.2480	3243	18.705	166.5	1.02	0.26
COMBUSTOR	0	29	22 4														
54.045	42.498	3282	544.8(1201)	1.2792	21.332	3128											
54.045	13.426	2528	234.4(897)	1.3056	21.335	2773	1.421	3941	2.662	0.28899	19.475	0.2631	3290	17.701	169.0	1.02	0.30
COMBUSTOR	0	30	23 4														
54.805	40.457	3407	540.7(1250)	1.2725	21.453	3170											
54.805	13.200	2655	227.5(945)	1.2994	21.457	2827	1.400	3959	2.675	0.27328	19.475	0.2782	3337	16.814	171.4	1.02	0.33
COMBUSTOR	0	31	24 4														
55.760	38.499	3539	535.6(1302)	1.2650	21.584	3211											
55.760	12.694	2778	214.1(991)	1.2932	21.592	2876	1.395	4011	2.684	0.25609	19.475	0.2969	3393	15.961	174.2	1.02	0.37
COMBUSTOR	0	32	25 5														
56.230	31.197	4037	533.2(1499)	1.2316	22.067	3347											
56.230	12.444	3369	227.4(1220)	1.2629	22.103	3094	1.265	3912	2.737	0.20668	19.475	0.3679	3540	12.564	181.8	1.02	0.51
COMBUSTOR	0	33	26 4														
56.285	33.527	3780	532.9(1397)	1.2498	21.817	3281											
56.285	9.883	2922	161.4(1043)	1.2845	21.835	2923	1.475	4311	2.716	0.20606	19.475	0.3690	3544	13.806	182.0	1.02	0.43
COMBUSTOR	0	34	27 3														
56.425	33.360	3797	532.2(1404)	1.2487	21.835	3286											
56.425	9.845	2938	159.6(1050)	1.2837	21.854	2929	1.474	4318	2.718	0.20462	19.475	0.3716	3551	13.731	182.3	1.02	0.44
COMBUSTOR	0	35	28 5														
56.505	31.517	4054	531.9(1506)	1.2303	22.088	3351											
56.505	12.298	3371	218.2(1220)	1.2625	22.125	3092	1.281	3962	2.737	0.20695	19.475	0.3674	3555	12.741	182.6	1.02	0.51
COMBUSTOR	0	36	29 3														
56.785	31.647	4075	530.6(1514)	1.2288	22.111	3355											
56.785	12.150	3380	210.6(1223)	1.2618	22.151	3094	1.293	4001	2.737	0.20619	19.475	0.3688	3569	12.821	183.3	1.02	0.52
COMBUSTOR	0	37	30 4														
57.011	32.714	3976	529.6(1475)	1.2363	22.015	3332											
57.011	10.948	3188	176.6(1147)	1.2714	22.046	3025	1.390	4202	2.729	0.20587	19.475	0.3693	3579	13.445	183.8	1.02	0.49

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 6														
57.735	40.465	3480	526.6(1278)	1.2681	21.550	3191											
57.735	7.100	2355	62.6(825)	1.3067	21.556	2666	1.807	4818	2.679	0.20261	19.475	0.3753	3599	15.171	184.8	1.02	0.36
COMBUSTOR	0	39	32 6														
58.755	54.786	3095	523.0(1127)	1.2879	21.213	3056											
58.755	4.950	1744	-10.4(599)	1.3376	21.215	2338	2.210	5166	2.620	0.20132	19.475	0.3777	3606	16.163	185.2	1.02	0.26
COMBUSTOR	0	40	33 6														
60.765	32.195	4149	516.8(1543)	1.2229	22.216	3370											
60.765	12.450	3459	194.2(1253)	1.2566	22.265	3116	1.290	4018	2.737	0.20832	19.475	0.3650	3596	13.007	184.6	1.02	0.55
COMBUSTOR	0	41	34 4														
62.185	32.500	4199	512.4(1563)	1.2189	22.277	3380											
62.185	13.612	3567	211.5(1296)	1.2506	22.330	3151	1.231	3880	2.738	0.21397	19.475	0.3553	3587	12.901	184.2	1.02	0.57
COMBUSTOR	0	42	35 4														
64.649	30.028	4282	503.0(1596)	1.2109	22.384	3394											
64.649	14.932	3779	253.4(1382)	1.2375	22.445	3218	1.098	3534	2.747	0.20282	19.475	0.3749	3573	11.138	183.5	1.02	0.60
COMBUSTOR	0	43	36 3														
65.025	27.785	4305	501.3(1605)	1.2079	22.411	3396											
65.025	15.004	3863	278.6(1417)	1.2318	22.472	3249	1.029	3339	2.755	0.18855	19.475	0.4032	3571	9.783	183.3	1.02	0.61
COMBUSTOR	REGEN	44	37 21														
65.025	27.785	4485	606.6(1683)	1.1952	22.357	3453											
65.025	19.236	4227	464.4(1572)	1.2088	22.416	3366	0.792	2668	2.779	0.18855	19.475	0.4032	3601	7.617	184.9	1.02	0.61
NOZZLE AE		45	38 4														
87.261	27.785	4305	501.3(1577)	1.2079	22.411	3396											
87.261	0.792	2054	-474.2(692)	1.3080	22.510	2436	2.868	6987	2.755	0.03928	19.475	1.9372	4622	4.262	237.3	1.02	0.61
NOZZLE PO		46	39 4														
87.261	27.785	4305	501.3(1577)	1.2079	22.411	3396											
87.261	0.412	1756	-584.0(583)	1.3214	22.510	2264	3.255	7370	2.755	0.02518	19.475	3.0200	4779	2.883	245.4	1.02	0.61
NOZZLE AE REGEN		47	40 4														
87.261	27.785	4485	606.6(1683)	1.1952	22.357	3453											
87.261	0.836	2216	-413.0(753)	1.3015	22.510	2524	2.830	7143	2.779	0.03925	19.475	1.9372	4738	4.357	243.3	1.02	0.61
NOZZLE PO REGEN		48	41 4														
87.261	27.785	4485	606.6(1683)	1.1952	22.357	3453											
87.261	0.412	1875	-940.6(626)	1.3158	22.510	2335	3.245	7576	2.779	0.02424	19.475	3.1365	4917	2.854	252.5	1.02	0.61
FICTIVE COMBUSTR		68	61 0														
65.025	113.181	5239	501.3(1985)	1.1539	23.385	3585											
65.025	0.412	1938	-1145.1(625)	1.2952	24.104	2275	3.989	9077	2.653	0.03010	19.475	2.5264	5761	4.245	295.8	1.02	1.00
FICTIVE NOZZLE		69	62 0														
87.261	20.159	4244	472.8(1579)	1.2082	22.414	3372											
87.261	0.919	2252	-399.2(767)	1.3001	22.510	2543	2.598	6606	2.777	0.03925	19.475	1.9371	4454	4.029	226.7	1.02	0.61

READING = 0095 BLOCK = 76 TIME = 169.149 MACH 5.2 PT = 300.250 TT = 2933.8

XABS	P-IB	P-OB	PDA	QOX	W-IB	G-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.981E-01	1.110E 00	0.000	-3.476E-01	0.000	0.000	0.000	2.470E-02	2.695E 00	3.697E-03	0.000	0.000
1.836E 01	1.110E 00	0.000	-3.684E 01	0.000	0.000	0.000	1.634E 02	2.695E 00	3.697E-03	0.000	0.000
3.070E 01	1.860E 00	0.000	-1.572E 02	0.000	0.000	0.000	5.053E 02	4.515E 00	6.195E-03	0.000	0.000
3.508E 01	3.147E 00	0.000	-3.195E 02	0.000	0.000	0.000	6.804E 02	7.641E 00	1.048E-02	0.000	0.000
3.516E 01	3.168E 00	4.352E 00	-3.673E 02	0.000	0.000	0.000	6.841E 02	7.691E 00	1.055E-02	1.057E 01	1.450E-02
3.517E 01	3.170E 00	4.339E 00	-3.673E 02	0.000	0.000	0.000	6.843E 02	7.695E 00	1.056E-02	1.053E 01	1.445E-02
3.555E 01	3.265E 00	3.487E 00	-3.738E 02	0.000	0.000	0.000	7.225E 02	7.926E 00	1.087E-02	8.465E 00	1.161E-02
3.583E 01	3.251E 00	2.850E 00	-3.823E 02	-2.768E 02	-2.768E 02	0.000	7.515E 02	7.892E 00	1.083E-02	6.919E 00	9.492E-03
3.606E 01	3.240E 00	3.748E 00	-3.892E 02	-2.803E 02	-2.803E 02	0.000	7.745E 02	7.866E 00	1.079E-02	9.099E 00	1.248E-02
3.648E 01	3.607E 00	5.424E 00	-3.992E 02	-2.872E 02	-2.872E 02	0.000	8.183E 02	8.758E 00	1.201E-02	1.317E 01	1.806E-02
3.701E 01	3.322E 00	7.538E 00	-4.115E 02	-3.436E 02	-2.963E 02	-4.728E 01	8.743E 02	8.066E 00	1.107E-02	1.830E 01	2.511E-02
3.729E 01	4.374E 00	8.675E 00	-4.185E 02	-3.628E 02	-3.014E 02	-6.144E 01	9.048E 02	1.062E 01	1.457E-02	2.106E 01	2.889E-02
3.803E 01	7.087E 00	1.028E 01	-4.647E 02	-4.125E 02	-3.152E 02	-9.729E 01	9.851E 02	1.721E 01	2.361E-02	2.495E 01	3.423E-02
3.831E 01	8.850E 00	1.090E 01	-4.864E 02	-4.323E 02	-3.212E 02	-1.111E 02	1.017E 03	2.149E 01	2.948E-02	2.646E 01	3.630E-02
3.875E 01	1.154E 01	1.109E 01	-5.232E 02	-4.639E 02	-3.318E 02	-1.321E 02	1.066E 03	2.802E 01	3.844E-02	2.691E 01	3.692E-02
3.878E 01	1.176E 01	1.110E 01	-5.260E 02	-4.666E 02	-3.328E 02	-1.338E 02	1.070E 03	2.854E 01	3.916E-02	2.695E 01	3.697E-02
3.901E 01	1.315E 01	1.182E 01	-5.420E 02	-4.838E 02	-3.391E 02	-1.446E 02	1.096E 03	3.192E 01	4.380E-02	2.870E 01	3.938E-02
3.929E 01	1.295E 01	1.274E 01	-5.583E 02	-5.064E 02	-3.481E 02	-1.583E 02	1.129E 03	3.145E 01	4.314E-02	3.092E 01	4.242E-02
3.950E 01	1.281E 01	9.248E 00	-5.676E 02	-5.232E 02	-3.551E 02	-1.680E 02	1.152E 03	3.110E 01	4.267E-02	2.245E 01	3.080E-02
3.978E 01	1.390E 01	4.400E 00	-5.845E 02	-5.472E 02	-3.658E 02	-1.814E 02	1.185E 03	3.374E 01	4.628E-02	1.068E 01	1.465E-02
4.000E 01	1.472E 01	4.398E 00	-6.009E 02	-5.660E 02	-3.747E 02	-1.913E 02	1.211E 03	3.572E 01	4.901E-02	1.068E 01	1.465E-02
4.040E 01	1.668E 01	4.394E 00	-6.318E 02	-6.020E 02	-3.924E 02	-2.096E 02	1.257E 03	4.050E 01	5.556E-02	1.067E 01	1.463E-02
4.041E 01	1.673E 01	4.394E 00	-6.324E 02	-6.029E 02	-3.928E 02	-2.100E 02	1.259E 03	4.062E 01	5.572E-02	1.067E 01	1.463E-02
4.127E 01	2.096E 01	4.385E 00	-7.051E 02	-6.899E 02	-4.352E 02	-2.546E 02	1.360E 03	5.088E 01	6.980E-02	1.065E 01	1.460E-02
4.128E 01	2.101E 01	4.385E 00	-7.059E 02	-6.910E 02	-4.358E 02	-2.552E 02	1.362E 03	5.099E 01	6.996E-02	1.065E 01	1.460E-02
4.134E 01	2.133E 01	4.384E 00	-7.117E 02	-6.983E 02	-4.393E 02	-2.590E 02	1.369E 03	5.177E 01	7.103E-02	1.064E 01	1.460E-02
4.150E 01	2.209E 01	6.014E 00	-7.253E 02	-7.158E 02	-4.477E 02	-2.681E 02	1.388E 03	5.362E 01	7.356E-02	1.460E 01	2.003E-02
4.246E 01	1.451E 01	1.610E 01	-7.542E 02	-8.337E 02	-5.081E 02	-3.256E 02	1.503E 03	3.523E 01	4.833E-02	3.909E 01	5.364E-02
4.406E 01	3.203E 01	3.297E 01	-7.225E 02	-1.077E 03	-6.464E 02	-4.305E 02	1.697E 03	7.775E 01	1.067E-01	8.004E 01	1.098E-01
4.431E 01	3.470E 01	3.323E 01	-7.211E 02	-1.122E 03	-6.720E 02	-4.496E 02	1.727E 03	8.425E 01	1.156E-01	8.068E 01	1.107E-01
4.478E 01	3.983E 01	3.373E 01	-7.239E 02	-1.223E 03	-7.242E 02	-4.985E 02	1.784E 03	9.670E 01	1.327E-01	8.189E 01	1.123E-01
4.480E 01	4.005E 01	3.375E 01	-7.240E 02	-1.228E 03	-7.266E 02	-5.009E 02	1.786E 03	9.723E 01	1.334E-01	8.194E 01	1.124E-01
4.625E 01	3.809E 01	3.529E 01	-6.827E 02	-1.608E 03	-8.883E 02	-7.195E 02	1.965E 03	9.247E 01	1.269E-01	8.568E 01	1.175E-01
4.626E 01	3.808E 01	3.530E 01	-6.822E 02	-1.611E 03	-8.894E 02	-7.212E 02	1.966E 03	9.243E 01	1.268E-01	8.570E 01	1.176E-01
4.730E 01	3.666E 01	3.641E 01	-5.988E 02	-1.906E 03	-9.977E 02	-9.080E 02	2.095E 03	8.901E 01	1.221E-01	8.840E 01	1.213E-01
4.731E 01	3.666E 01	3.638E 01	-6.011E 02	-1.907E 03	-9.982E 02	-9.089E 02	2.096E 03	8.899E 01	1.221E-01	8.832E 01	1.212E-01
4.811E 01	3.889E 01	3.137E 01	-5.230E 02	-2.106E 03	-1.077E 03	-1.029E 03	2.196E 03	9.441E 01	1.295E-01	7.614E 01	1.045E-01
4.874E 01	2.739E 01	2.739E 01	-4.376E 02	-2.229E 03	-1.136E 03	-1.092E 03	2.275E 03	6.648E 01	9.121E-02	6.648E 01	9.121E-02
4.875E 01	2.732E 01	2.732E 01	-4.362E 02	-2.230E 03	-1.137E 03	-1.093E 03	2.276E 03	6.633E 01	9.100E-02	6.633E 01	9.100E-02
4.928E 01	2.400E 01	2.400E 01	-3.653E 02	-2.309E 03	-1.185E 03	-1.124E 03	2.343E 03	5.826E 01	7.993E-02	5.826E 01	7.993E-02
5.069E 01	2.231E 01	2.231E 01	-1.941E 02	-2.499E 03	-1.303E 03	-1.196E 03	2.521E 03	5.417E 01	7.431E-02	5.417E 01	7.431E-02
5.279E 01	1.735E 01	1.735E 01	2.425E 01	-2.771E 03	-1.457E 03	-1.314E 03	2.787E 03	4.212E 01	5.779E-02	4.212E 01	5.779E-02
5.329E 01	1.365E 01	1.365E 01	6.454E 01	-2.827E 03	-1.490E 03	-1.337E 03	2.851E 03	3.314E 01	4.546E-02	3.314E 01	4.546E-02
5.404E 01	1.343E 01	1.343E 01	1.169E 02	-2.907E 03	-1.536E 03	-1.371E 03	2.946E 03	3.259E 01	4.472E-02	3.259E 01	4.472E-02
5.480E 01	1.320E 01	1.320E 01	1.685E 02	-2.988E 03	-1.579E 03	-1.408E 03	3.044E 03	3.204E 01	4.396E-02	3.204E 01	4.396E-02
5.576E 01	1.269E 01	1.269E 01	2.305E 02	-3.088E 03	-1.629E 03	-1.459E 03	3.167E 03	3.082E 01	4.228E-02	3.082E 01	4.228E-02
5.623E 01	1.244E 01	1.244E 01	3.799E 02	-3.134E 03	-1.649E 03	-1.485E 03	3.209E 03	3.021E 01	4.145E-02	3.021E 01	4.145E-02
5.628E 01	7.350E 00	1.242E 01	3.834E 02	-3.140E 03	-1.651E 03	-1.488E 03	3.217E 03	1.784E 01	2.448E-02	3.014E 01	4.135E-02
5.642E 01	7.350E 00	1.234E 01	3.915E 02	-3.153E 03	-1.656E 03	-1.496E 03	3.234E 03	1.784E 01	2.448E-02	2.996E 01	4.110E-02
5.650E 01	1.230E 01	1.230E 01	3.964E 02	-3.160E 03	-1.659E 03	-1.501E 03	3.245E 03	2.986E 01	4.096E-02	2.986E 01	4.096E-02
5.678E 01	1.215E 01	1.215E 01	4.124E 02	-3.185E 03	-1.669E 03	-1.516E 03	3.280E 03	2.950E 01	4.047E-02	2.950E 01	4.047E-02
5.701E 01	1.095E 01	1.095E 01	4.236E 02	-3.204E 03	-1.677E 03	-1.528E 03	3.309E 03	2.658E 01	3.646E-02	2.658E 01	3.646E-02
5.773E 01	7.100E 00	7.100E 00	4.481E 02	-3.262E 03	-1.699E 03	-1.563E 03	3.402E 03	1.724E 01	2.365E-02	1.724E 01	2.365E-02
5.875E 01	4.950E 00	4.950E 00	4.620E 02	-3.333E 03	-1.724E 03	-1.608E 03	3.532E 03	1.202E 01	1.649E-02	1.202E 01	1.649E-02
6.076E 01	1.245E 01	1.245E 01	4.641E 02	-3.454E 03	-1.762E 03	-1.692E 03	3.790E 03	3.022E 01	4.147E-02	3.022E 01	4.147E-02
6.218E 01	1.361E 01	1.361E 01	4.641E 02	-3.540E 03	-1.788E 03	-1.752E 03	3.972E 03	3.305E 01	4.534E-02	3.305E 01	4.534E-02

READING # 0095 BLOCK = 76 TIME = 169.149 MACH 5.2 PT = 300.250 TT = 2933.8

XABS	P-IB	P-OB	PDA	QOX	W-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.465E 01	1.493E 01	1.493E 01	4.641E 02	-3.722E 03	-1.857E 03	-1.865E 03	4.289E 03	3.625E 01	4.973E-02	3.625E 01	4.973E-02
6.502E 01	1.487E 01	1.513E 01	4.641E 02	-3.754E 03	-1.871E 03	-1.884E 03	4.337E 03	3.611E 01	4.954E-02	3.674E 01	5.040E-02
6.506E 01	1.487E 01	1.516E 01	4.641E 02	-3.758E 03	-1.872E 03	-1.886E 03	4.342E 03	3.611E 01	4.954E-02	3.679E 01	5.048E-02
6.526E 01	1.396E 01	1.526E 01	4.641E 02	-3.774E 03	-1.879E 03	-1.895E 03	4.368E 03	3.389E 01	4.650E-02	3.705E 01	5.083E-02
6.692E 01	6.375E 00	6.250E 00	5.812E 02	-3.845E 03	-1.927E 03	-1.968E 03	4.583E 03	1.548E 01	2.123E-02	1.517E 01	2.082E-02
6.759E 01	4.823E 00	6.052E 00	7.001E 02	-3.937E 03	-1.941E 03	-1.997E 03	4.665E 03	1.171E 01	1.606E-02	1.469E 01	2.016E-02
6.836E 01	3.040E 00	4.656E 00	8.265E 02	-3.985E 03	-1.953E 03	-2.031E 03	4.760E 03	7.380E 00	1.012E-02	1.130E 01	1.551E-02
6.908E 01	2.423E 00	3.350E 00	9.123E 02	-4.030E 03	-1.963E 03	-2.067E 03	4.848E 03	5.882E 00	8.069E-03	8.133E 00	1.116E-02
6.969E 01	1.900E 00	2.529E 00	9.671E 02	-4.065E 03	-1.970E 03	-2.095E 03	4.922E 03	4.613E 00	6.328E-03	6.139E 00	8.422E-03
7.064E 01	1.501E 00	1.250E 00	1.024E 03	-4.110E 03	-1.980E 03	-2.130E 03	5.036E 03	3.643E 00	4.998E-03	3.035E 00	4.163E-03
7.107E 01	1.320E 00	1.368E 00	1.044E 03	-4.127E 03	-1.984E 03	-2.143E 03	5.088E 03	3.204E 00	4.396E-03	3.322E 00	4.558E-03
7.260E 01	2.039E 00	1.790E 00	1.123E 03	-4.178E 03	-1.996E 03	-2.182E 03	5.273E 03	4.951E 00	6.793E-03	4.345E 00	5.962E-03
7.275E 01	2.110E 00	1.617E 00	1.131E 03	-4.183E 03	-1.997E 03	-2.185E 03	5.290E 03	5.122E 00	7.027E-03	3.925E 00	5.384E-03
7.350E 01	1.874E 00	7.500E-01	1.182E 03	-4.208E 03	-2.002E 03	-2.206E 03	5.374E 03	4.549E 00	6.241E-03	1.821E 00	2.498E-03
7.351E 01	1.873E 00	7.454E-01	1.183E 03	-4.208E 03	-2.002E 03	-2.206E 03	5.375E 03	4.546E 00	6.237E-03	1.809E 00	2.482E-03
7.483E 01	1.455E 00	0.000	1.218E 03	-4.256E 03	-2.010E 03	-2.248E 03	5.427E 03	3.532E 00	4.846E-03	0.000	0.000
7.768E 01	1.540E 00	0.000	1.278E 03	-4.271E 03	-2.023E 03	-2.248E 03	5.525E 03	3.739E 00	5.129E-03	0.000	0.000
8.158E 01	9.900E-01	0.000	1.332E 03	-4.283E 03	-2.035E 03	-2.248E 03	5.630E 03	2.403E 00	3.297E-03	0.000	0.000
8.439E 01	9.650E-01	0.000	1.354E 03	-4.293E 03	-2.045E 03	-2.248E 03	5.684E 03	2.343E 00	3.214E-03	0.000	0.000
8.725E 01	1.270E 00	0.000	1.381E 03	-4.311E 03	-2.063E 03	-2.248E 03	5.707E 03	3.083E 00	4.230E-03	0.000	0.000
8.726E 01	1.271E 00	0.000	1.381E 03	-4.311E 03	-2.063E 03	-2.248E 03	5.707E 03	3.085E 00	4.232E-03	0.000	0.000

READING = 0095 BLOCK = 76 TIME = 169.149 MACH 5.2 PI = 300.250 TI = 2933.8

X	UDRAG	CDRAG	CF	HC
4.040E 01	9.532E 01	9.532E 01	2.645E-03	3.559E-02
4.041E 01	1.356E-01	9.545E 01	2.901E-03	2.782E-02
4.127E 01	1.231E 01	1.078E 02	2.982E-03	3.140E-02
4.128E 01	1.355E-01	1.079E 02	2.815E-03	3.305E-02
4.134E 01	8.639E-01	1.088E 02	2.795E-03	3.351E-02
4.150E 01	2.036E 00	1.108E 02	2.810E-03	3.536E-02
4.246E 01	1.235E 01	1.231E 02	2.843E-03	3.673E-02
4.406E 01	1.877E 01	1.419E 02	3.157E-03	4.874E-02
4.431E 01	2.515E 00	1.444E 02	3.136E-03	4.973E-02
4.478E 01	4.617E 00	1.490E 02	3.161E-03	5.000E-02
4.480E 01	1.923E-01	1.492E 02	3.170E-03	4.984E-02
4.625E 01	1.397E 01	1.632E 02	3.536E-03	4.450E-02
4.626E 01	9.150E-02	1.633E 02	3.063E-03	5.308E-02
4.730E 01	8.382E 00	1.717E 02	3.019E-03	5.248E-02
4.731E 01	4.501E-02	1.717E 02	3.123E-03	5.048E-02
4.811E 01	6.191E 00	1.779E 02	3.088E-03	4.983E-02
4.874E 01	5.328E 00	1.833E 02	3.499E-03	4.102E-02
4.875E 01	8.674E-02	1.833E 02	3.032E-03	4.866E-02
4.928E 01	4.252E 00	1.876E 02	2.974E-03	4.651E-02
5.069E 01	1.057E 01	1.982E 02	2.933E-03	4.328E-02
5.279E 01	1.441E 01	2.126E 02	2.988E-03	3.568E-02
5.329E 01	3.516E 00	2.161E 02	3.084E-03	3.013E-02
5.404E 01	5.306E 00	2.214E 02	3.001E-03	3.015E-02
5.480E 01	5.078E 00	2.265E 02	3.042E-03	2.896E-02
5.576E 01	6.151E 00	2.326E 02	3.072E-03	2.753E-02
5.623E 01	1.884E 00	2.345E 02	3.082E-03	2.495E-02
5.628E 01	2.943E-01	2.348E 02	3.255E-03	2.088E-02
5.642E 01	7.817E-01	2.356E 02	3.134E-03	2.162E-02
5.650E 01	4.421E-01	2.360E 02	3.393E-03	2.230E-02
5.678E 01	1.519E 00	2.375E 02	3.268E-03	2.307E-02
5.701E 01	1.234E 00	2.388E 02	3.250E-03	2.201E-02
5.773E 01	4.239E 00	2.430E 02	3.147E-03	1.756E-02
5.875E 01	6.133E 00	2.491E 02	2.842E-03	1.500E-02
6.076E 01	1.061E 01	2.597E 02	2.800E-03	2.737E-02
6.218E 01	7.162E 00	2.669E 02	3.270E-03	2.422E-02
6.465E 01	1.257E 01	2.795E 02	3.349E-03	2.392E-02
6.502E 01	1.714E 00	2.812E 02	3.445E-03	2.255E-02
6.506E 01	1.748E-01	2.814E 02	3.514E-03	2.288E-02
6.526E 01	8.892E-01	2.823E 02	3.506E-03	2.277E-02
6.692E 01	7.665E 00	2.899E 02	3.314E-03	1.565E-02
6.759E 01	2.877E 00	2.928E 02	3.285E-03	1.430E-02
6.836E 01	3.061E 00	2.959E 02	3.227E-03	1.145E-02
6.908E 01	2.490E 00	2.984E 02	3.179E-03	9.416E-03
6.969E 01	1.837E 00	3.002E 02	3.139E-03	7.816E-03
7.064E 01	2.340E 00	3.025E 02	3.068E-03	5.547E-03
7.107E 01	9.191E-01	3.035E 02	3.063E-03	5.430E-03
7.260E 01	3.584E 00	3.070E 02	3.109E-03	7.013E-03
7.275E 01	3.658E-01	3.074E 02	3.104E-03	6.874E-03
7.350E 01	1.617E 00	3.090E 02	3.048E-03	5.309E-03
7.351E 01	2.789E-03	3.090E 02	3.048E-03	5.300E-03
7.483E 01	9.198E-01	3.099E 02	3.056E-03	5.716E-03
7.768E 01	1.814E 00	3.118E 02	3.049E-03	5.926E-03
8.158E 01	1.735E 00	3.135E 02	2.964E-03	4.235E-03
8.439E 01	7.751E-01	3.143E 02	2.947E-03	4.133E-03
8.725E 01	3.467E-01	3.146E 02	2.974E-03	5.054E-03
8.726E 01	0.000	3.146E 02	2.974E-03	5.056E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	993. (LBF)
MEASURED THRUST	1086. (LBF)
CALCULATED SPECIFIC IMPULSE	1606. (LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1756. (LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5154
MEASURED THRUST COEFFICIENT	0.5636

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	4566. (LBF)
NET THRUST	1105. (LBF)
SPECIFIC IMPULSE	1787. (LBF-SEC/LBM)
THRUST COEFFICIENT	0.5735

MOMENTUM AND FORCES

INLET FRICTION DRAG	95.3 (LBF)
INLET MOMENTUM CHANGE	-727.1 (LBF)
COMBUSTOR FRICTION DRAG	185.9 (LBF)
COMBUSTOR STRUT DRAG	7.19 (LBF)
COMBUSTOR MOMENTUM CHANGE	836. (LBF)
NOZZLE FRICTION DRAG	33.42 (LBF)
NOZZLE STRUT DRAG	0.00 (LBF)
NOZZLE MOMENTUM CHANGE	883. (LBF)
NOZZLE PRESSURE INTEGRAL	917. (LBF)
EXTERNAL FRICTION DRAG	42.63 (LBF)
EXTERNAL PRESSURE INTEGRAL	-940. (LBF)
TOTAL EXTERNAL DRAG	-983. (LBF)
TOTAL STRUT DRAG	7.19 (LBF)
CAVITY FORCE	-1464. (LBF)
CALCULATED LOAD CELL FORCE	-1453. (LBF)
MEASURED LOAD CELL FORCE	-1361. (LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, -150.6, -122.2,

STATIONS

NOMINAL COWL LEADING EDGE	34.884 (IN)
SPIKE TRANSLATION	0.2849 (IN)
INLET THROAT	40.400 (IN)
COWL LEADING EDGE	35.169 (IN)
NOZZLE SHROUD TRAILING EDGE	73.509 (IN)
NOZZLE PLUG TRAILING EDGE	87.261 (IN)
STRUT LEADING EDGE	56.425 (IN)
STRUT TRAILING EDGE	65.025 (IN)
COMBUSTOR EXIT	65.025 (IN)

INLET

ANGLE OF ATTACK	0.000 (DEGREES)
MASS FLOW RATIO	0.8655
ADDITIVE DRAG COEFFICIENT	0.0110
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2494
DELTA PT2	0.0930 (PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3770
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2540
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8923
INLET PROCESS EFFICIENCY - SUBSONIC	0.9116
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9008
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8719
ENTHALPY AT PO - SUPERSONIC	29.02 (BTU/LBM)
ENTHALPY AT PO - SUBSONIC	47.68 (BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0328
EQUIVALENCE RATIO	1.019
COMBUSTOR EFFICIENCY	0.608
TOTAL PRESSURE RATIO	0.2455
COMBUSTOR EFFECTIVENESS	0.6742
INJECTOR DISCHARGE COEFFICIENTS	0.9735, 0.4752, 0.8967, 0.7821

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9636
NOZZLE COEFFICIENT - CT	0.8892
PROCESS EFFICIENCY	0.9343
KINETIC ENERGY EFFICIENCY	0.9196

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.270	B
1C	44.300	
2A	48.745	D
2C	46.250	E
3A	54.035	
3B	56.220	
4	44.770	

Reading 95

t = 189.85 sec.

READING = 0095 BLOCK = 99 TIME = 189.849 MACH 5.2 PT = 300.250 TT = 2937.7 2/28/75 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	FTAC
WIND TUNNEL		1	0 5															
0.000	300.250	2938	651.2(	777)	1.2951	28.919	2557											
0.000	0.384	512	-6.0(	123)	1.3989	28.919	1109	5.170	5735	1.884	0.08054	17.855	0.8655	3268	7.178	183.0		
SPIKE TIP NS		2	0 7															
0.600	14.275	2938	651.2(	777)	1.2949	28.919	2557											
0.600	13.045	2878	633.2(	759)	1.2969	28.919	2533	0.375	949	2.093	0.08054	17.855	0.8655	3419	1.188	191.5		
WIND TUNNEL		3	0 0															
0.000	300.250	2938	651.2(	777)	1.2951	28.919	2557											
0.000	0.416	524	-3.2(	126)	1.3987	28.919	1122	5.100	5722	1.884	0.08516	18.879	0.8655	3450	7.573	182.7		
SPIKE TIP NS		4	0 0															
0.600	14.275	2938	651.2(	777)	1.2949	28.919	2557											
0.600	12.879	2869	630.7(	757)	1.2971	28.919	2530	0.401	1014	2.093	0.08516	18.879	0.8655	3450	1.342	182.7		
INLET THROAT		5	0 4															
40.400	119.849	2813	613.9(	740)	1.2990	28.919	2507											
40.400	13.637	1662	285.9(	415)	1.3399	28.919	1957	2.071	4052	1.934	0.62214	18.879	0.1120	2769	41.420	146.7		
INLET UPNRSK		6	0 3															
40.400	119.849	2813	613.9(	740)	1.2990	28.919	2507											
40.400	12.732	1633	278.1(	407)	1.3413	28.919	1941	2.112	4099	1.934	0.59803	18.879	0.1233	2807	38.098	148.7		
INLET DNNRSK		7	0 4															
40.400	77.394	2813	613.9(	740)	1.2990	28.919	2507											
40.400	63.915	2692	577.7(	705)	1.3029	28.919	2455	0.548	1346	1.964	0.59803	18.879	0.1233	2807	12.507	148.7		
COMBUSTOR	0	8	1 4															
40.410	119.941	2813	613.9(	740)	1.2990	28.919	2507											
40.410	15.032	1703	297.0(	426)	1.3379	28.919	1979	2.012	3982	1.934	0.65775	18.879	0.1121	2768	40.703	146.6		
COMBUSTOR	0	9	2 4															
41.280	101.342	2797	609.1(	736)	1.2995	28.919	2500											
41.280	17.300	1829	331.5(	460)	1.3326	28.919	2047	1.821	3727	1.944	0.65969	18.879	0.1117	2682	38.205	142.1		
COMBUSTOR	0	10	3 4															
41.345	100.145	2796	608.7(	735)	1.2995	28.919	2499											
41.345	17.499	1839	334.1(	463)	1.3322	28.919	2052	1.806	3706	1.944	0.66006	18.879	0.1117	2675	38.015	141.7		
COMBUSTOR	0	11	4 4															
41.500	97.366	2793	607.7(	734)	1.2997	28.919	2498											
41.500	17.994	1862	340.6(	470)	1.3313	28.919	2064	1.771	3655	1.946	0.66103	18.879	0.1115	2659	37.550	140.8		
CCMBUSTOR	0	12	5 5															
42.460	87.202	2771	601.2(	728)	1.3003	28.919	2489											
42.460	19.574	1938	361.6(	491)	1.3284	28.919	2104	1.646	3463	1.951	0.65453	18.879	0.1126	2596	35.221	137.5		
COMBUSTOR	0	13	6 4															
44.065	79.924	2732	589.8(	717)	1.3016	28.919	2473											
44.065	19.804	1956	366.7(	496)	1.3278	28.919	2113	1.581	3341	1.953	0.63291	18.879	0.1165	2551	32.860	135.1		
COMBUSTOR	0	14	7 3															
44.310	79.100	2726	588.0(	715)	1.3018	28.919	2470											
44.310	19.896	1959	367.5(	496)	1.3277	28.919	2115	1.571	3322	1.953	0.63138	18.879	0.1167	2544	32.594	134.8		
CCMBUSTOR	0	15	8 3															
44.780	78.281	2714	584.4(	712)	1.3021	28.919	2465											
44.780	19.872	1954	366.1(	495)	1.3278	28.919	2112	1.565	3305	1.953	0.62893	18.879	0.1172	2536	32.302	134.3		
COMBUSTOR	0	16	9 3															
44.800	78.251	2714	584.2(	711)	1.3022	28.919	2465											
44.800	19.853	1953	365.9(	495)	1.3279	28.919	2112	1.565	3305	1.953	0.62860	18.879	0.1173	2536	32.287	134.3		
COMBUSTOR	0	17	10 15															
46.250	63.127	2524	595.1(	771)	1.3140	24.406	2599											
46.250	33.793	2169	475.9(	653)	1.3261	24.406	2421	1.009	2442	2.230	0.60090	19.150	0.1244	2530	22.806	132.1	0.45	0.03
COMBUSTOR	0	18	11 2															
46.260	63.107	2525	595.0(	772)	1.3140	24.408	2600											
46.260	33.881	2172	476.3(	654)	1.3260	24.408	2422	1.006	2437	2.230	0.60061	19.150	0.1245	2531	22.750	132.2	0.45	0.04

READING = 0095 BLOCK = 99 TIME = 189.849 MACH 5.2 PT = 300.250 TT = 2937.7

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
47.305	62.424	2575	586.3(787)	1.3114	24.479	2619											
47.305	43.114	2356	512.3(714)	1.3187	24.479	2512	0.766	1925	2.236	0.55795	19.150	0.1340	2625	16.691	137.1	0.45	0.07
COMBUSTOR	0	20	13 2														
47.310	62.463	2570	586.3(786)	1.3116	24.475	2617											
47.310	43.113	2352	512.2(713)	1.3189	24.475	2510	0.767	1925	2.235	0.55895	19.150	0.1338	2623	16.722	137.0	0.45	0.07
COMBUSTOR	0	21	14 4														
48.110	60.261	2787	580.2(856)	1.3015	24.701	2702											
48.110	41.359	2552	499.4(776)	1.3093	24.701	2593	0.775	2011	2.258	0.52097	19.150	0.1435	2717	16.280	141.9	0.45	0.17
COMBUSTOR	0	22	15 11														
48.745	55.664	2495	602.8(891)	1.3182	20.787	2805											
48.745	32.732	2192	484.0(773)	1.3287	20.787	2639	0.924	2438	2.541	0.48985	19.472	0.1552	2777	18.561	142.6	0.99	0.07
COMBUSTOR	0	23	16 2														
48.755	55.619	2499	602.7(892)	1.3180	20.790	2806											
48.755	32.650	2194	483.4(774)	1.3286	20.790	2640	0.925	2443	2.541	0.48922	19.472	0.1554	2778	18.577	142.7	0.99	0.07
COMBUSTOR	0	24	17 4														
49.285	53.427	2668	599.8(956)	1.3101	20.932	2881											
49.285	28.300	2290	450.5(808)	1.3231	20.932	2683	1.019	2733	2.565	0.45754	19.472	0.1662	2859	19.435	146.8	0.99	0.11
COMBUSTOR	0	25	18 5														
50.695	48.801	3080	591.6(1113)	1.2906	21.295	3046											
50.695	27.769	2707	439.5(963)	1.3033	21.296	2870	0.961	2759	2.614	0.38995	19.472	0.1950	3056	16.717	157.0	0.99	0.22
COMBUSTOR	0	26	19 5														
52.795	44.028	3507	574.9(1283)	1.2681	21.613	3198											
52.795	19.250	2929	330.6(1047)	1.2894	21.619	2947	1.186	3496	2.665	0.32150	19.588	0.2379	3301	17.468	168.5	0.99	0.34
COMBUSTOR	0	27	20 4														
53.295	42.996	3598	571.9(1319)	1.2628	21.703	3226											
53.295	18.367	2997	315.7(1072)	1.2857	21.712	2970	1.206	3581	2.673	0.30836	19.588	0.2488	3347	17.160	170.9	0.99	0.37
COMBUSTOR	0	28	21 4														
54.045	41.961	3682	567.6(1351)	1.2577	21.792	3250											
54.045	16.446	3017	282.2(1079)	1.2836	21.803	2971	1.272	3779	2.680	0.29067	19.588	0.2631	3409	17.070	174.0	0.99	0.39
COMBUSTOR	0	29	22 4														
54.805	41.361	3720	563.3(1366)	1.2553	21.837	3260											
54.805	14.500	2978	244.8(1062)	1.2843	21.850	2950	1.353	3992	2.683	0.27487	19.588	0.2782	3464	17.052	176.8	0.99	0.40
COMBUSTOR	0	30	23 4														
55.760	39.652	3849	558.0(1417)	1.2468	21.973	3295											
55.760	13.704	3088	225.7(1103)	1.2782	21.993	2987	1.365	4078	2.694	0.25758	19.588	0.2969	3525	16.323	179.9	0.99	0.44
COMBUSTOR	0	31	24 5														
56.230	32.498	4386	555.6(1630)	1.2046	22.518	3415											
56.230	13.312	3745	236.1(1359)	1.2386	22.604	3194	1.252	3998	2.738	0.20788	19.588	0.3679	3688	12.915	188.3	0.99	0.61
COMBUSTOR	0	32	25 5														
56.285	34.586	4134	555.3(1530)	1.2257	22.261	3364											
56.285	10.733	3288	168.8(1178)	1.2654	22.310	3045	1.444	4398	2.721	0.20726	19.588	0.3698	3692	14.165	188.5	0.99	0.53
COMBUSTOR	0	33	26 3														
56.425	34.441	4151	554.6(1536)	1.2243	22.279	3368											
56.425	10.675	3304	166.3(1183)	1.2644	22.331	3050	1.445	4408	2.722	0.20581	19.588	0.3716	3700	14.098	188.9	0.99	0.53
COMBUSTOR	0	34	27 5														
56.505	32.878	4399	554.3(1635)	1.2036	22.535	3418											
56.505	13.083	3738	224.5(1356)	1.2386	22.624	3190	1.274	4062	2.737	0.20815	19.588	0.3674	3704	13.140	189.1	0.99	0.61
COMBUSTOR	0	35	28 3														
56.785	33.061	4413	552.9(1641)	1.2024	22.553	3420											
56.785	12.850	3737	214.4(1355)	1.2383	22.647	3187	1.291	4116	2.737	0.20739	19.588	0.3688	3719	13.264	189.9	0.99	0.62
COMBUSTOR	0	36	29 4														
57.011	34.231	4300	551.9(1595)	1.2124	22.437	3399											
57.011	11.506	3512	175.8(1265)	1.2523	22.512	3116	1.392	4338	2.729	0.20707	19.588	0.3693	3730	13.961	190.4	0.99	0.58
COMBUSTOR	0	37	30 6														
57.735	43.413	3717	548.9(1364)	1.2552	21.866	3257											
57.735	7.200	2513	44.8(877)	1.3005	21.881	2725	1.843	5023	2.677	0.20379	19.588	0.3753	3750	15.906	191.4	0.99	0.41

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58.755	46.370	3620	544.8(1326)	1.2610	21.783	3228											
58.755	6.562	2345	18.8(814)	1.3077	21.793	2645	1.940	5131	2.664	0.20249	19.588	0.3777	3758	16.145	191.9	0.99	0.39
COMBUSTOR	0	39	32 6														
60.765	33.395	4535	537.1(1689)	1.1914	22.717	3439											
60.765	13.650	3909	207.6(1422)	1.2251	22.840	3229	1.258	4060	2.739	0.20954	19.588	0.3658	3748	13.221	191.3	0.99	0.67
COMBUSTOR	0	40	33 4														
62.185	33.571	4620	531.6(1723)	1.1837	22.820	3452											
62.185	15.525	4095	239.8(1497)	1.2112	22.957	3277	1.166	3821	2.740	0.21522	19.588	0.3553	3739	12.779	190.9	0.99	0.71
COMBUSTOR	0	41	34 4														
64.649	31.380	4648	520.1(1733)	1.1795	22.877	3452											
64.649	16.035	4200	262.9(1540)	1.2025	23.013	3303	1.086	3588	2.746	0.20400	19.588	0.3749	3724	11.374	190.1	0.99	0.73
COMBUSTOR	0	42	35 4														
65.025	29.065	4666	518.1(1740)	1.1764	22.901	3452											
65.025	16.019	4275	287.7(1572)	1.1960	23.034	3322	1.022	3396	2.753	0.18965	19.588	0.4032	3722	10.008	190.0	0.99	0.74
COMBUSTOR	REGEN	43	36 21														
65.025	29.065	4784	605.0(1792)	1.1688	22.822	3490											
65.025	18.256	4489	417.7(1664)	1.1813	22.952	3389	0.903	3661	2.771	0.18965	19.588	0.4032	3749	9.021	191.4	0.99	0.74
NOZZLE AE		44	37 4														
87.261	29.065	4666	518.1(1705)	1.1764	22.901	3452											
87.261	0.873	2412	-539.2(814)	1.2878	23.165	2582	2.817	7274	2.753	0.03948	19.588	1.9372	4862	4.463	248.2	0.99	0.74
NOZZLE PO		45	38 4														
87.261	29.065	4666	518.1(1705)	1.1764	22.901	3452											
87.261	0.416	2038	-680.3(674)	1.3026	23.165	2387	3.245	7744	2.753	0.02372	19.588	3.2236	5858	2.855	258.2	0.99	0.74
NOZZLE AE	REGEN	46	39 4														
87.261	29.065	4784	605.0(1792)	1.1688	22.822	3490											
87.261	0.910	2553	-484.7(869)	1.2825	23.165	2651	2.786	7384	2.771	0.03948	19.588	1.9372	4947	4.530	252.6	0.99	0.74
NOZZLE PO	REGEN	47	40 4														
87.261	29.065	4784	605.0(1792)	1.1688	22.822	3490											
87.261	0.416	2141	-641.9(712)	1.2983	23.165	2442	3.234	7899	2.771	0.02303	19.588	3.3206	5163	2.827	263.6	0.99	0.74
FICTIVE COMBUSTR		67	60 0														
65.025	119.849	5254	518.1(1979)	1.1543	23.519	3581											
65.025	0.416	1950	-1136.7(625)	1.2943	24.282	2273	4.003	9100	2.636	0.03054	19.588	2.5045	5807	4.318	296.5	0.99	1.00
FICTIVE NOZZLE		68	61 0														
87.261	18.081	4598	493.9(1712)	1.1731	22.887	3423											
87.261	1.098	2781	-395.0(957)	1.2738	23.164	2757	2.419	6669	2.789	0.03948	19.588	1.9371	4605	4.092	235.1	0.99	0.74

READING = 0095 BLOCK = 99 TIME = 189.849 MACH 5.2 PT = 300.250 TT = 2937.7

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.065E 00	0.000	-3.500E-01	0.000	0.000	0.000	2.470E-02	2.558E 00	3.547E-03	0.000	0.000
1.836E 01	1.065E 00	0.000	-3.536E 01	0.000	0.000	0.000	1.634E 02	2.558E 00	3.547E-03	0.000	0.000
3.070E 01	1.890E 00	0.000	-1.552E 02	0.000	0.000	0.000	5.053E 02	4.539E 00	6.295E-03	0.000	0.000
3.508E 01	3.078E 00	0.000	-3.161E 02	0.000	0.000	0.000	6.804E 02	7.392E 00	1.025E-02	0.000	0.000
3.516E 01	3.107E 00	4.354E 00	-3.638E 02	0.000	0.000	0.000	6.841E 02	7.461E 00	1.035E-02	1.046E 01	1.450E-02
3.517E 01	3.109E 00	4.339E 00	-3.639E 02	0.000	0.000	0.000	6.843E 02	7.466E 00	1.035E-02	1.042E 01	1.445E-02
3.555E 01	3.240E 00	3.387E 00	-3.702E 02	0.000	0.000	0.000	7.225E 02	7.781E 00	1.079E-02	8.134E 00	1.128E-02
3.583E 01	3.265E 00	2.675E 00	-3.791E 02	-3.780E 02	-3.780E 02	0.000	7.515E 02	7.842E 00	1.087E-02	6.424E 00	8.909E-03
3.606E 01	3.285E 00	3.664E 00	-3.864E 02	-3.829E 02	-3.829E 02	0.000	7.745E 02	7.889E 00	1.094E-02	8.798E 00	1.220E-02
3.648E 01	3.528E 00	5.508E 00	-3.963E 02	-3.923E 02	-3.923E 02	0.000	8.183E 02	8.473E 00	1.175E-02	1.323E 01	1.835E-02
3.701E 01	3.427E 00	7.836E 00	-4.080E 02	-4.442E 02	-4.047E 02	-3.952E 01	8.743E 02	8.231E 00	1.142E-02	1.882E 01	2.610E-02
3.729E 01	4.337E 00	9.087E 00	-4.145E 02	-4.630E 02	-4.116E 02	-5.136E 01	9.048E 02	1.042E 01	1.444E-02	2.182E 01	3.027E-02
3.803E 01	6.682E 00	1.087E 01	-4.552E 02	-5.119E 02	-4.305E 02	-8.138E 01	9.851E 02	1.605E 01	2.226E-02	2.611E 01	3.621E-02
3.831E 01	8.745E 00	1.156E 01	-4.745E 02	-5.315E 02	-4.385E 02	-9.296E 01	1.017E 03	2.100E 01	2.913E-02	2.777E 01	3.851E-02
3.875E 01	1.189E 01	1.185E 01	-5.103E 02	-5.631E 02	-4.525E 02	-1.106E 02	1.066E 03	2.856E 01	3.961E-02	2.846E 01	3.947E-02
3.878E 01	1.215E 01	1.187E 01	-5.131E 02	-5.657E 02	-4.537E 02	-1.120E 02	1.070E 03	2.917E 01	4.045E-02	2.852E 01	3.955E-02
3.901E 01	1.377E 01	1.270E 01	-5.293E 02	-5.830E 02	-4.619E 02	-1.211E 02	1.096E 03	3.308E 01	4.588E-02	3.049E 01	4.229E-02
3.929E 01	1.346E 01	1.374E 01	-5.456E 02	-6.058E 02	-4.732E 02	-1.325E 02	1.129E 03	3.233E 01	4.484E-02	3.299E 01	4.575E-02
3.950E 01	1.324E 01	9.728E 00	-5.548E 02	-6.228E 02	-4.821E 02	-1.407E 02	1.152E 03	3.179E 01	4.409E-02	2.336E 01	3.239E-02
3.978E 01	1.418E 01	4.150E 00	-5.723E 02	-6.474E 02	-4.954E 02	-1.520E 02	1.185E 03	3.404E 01	4.721E-02	9.967E 00	1.382E-02
4.000E 01	1.488E 01	4.266E 00	-5.892E 02	-6.666E 02	-5.063E 02	-1.603E 02	1.211E 03	3.575E 01	4.957E-02	1.025E 01	1.421E-02
4.040E 01	1.710E 01	4.483E 00	-6.210E 02	-7.037E 02	-5.279E 02	-1.758E 02	1.257E 03	4.106E 01	5.694E-02	1.077E 01	1.493E-02
4.041E 01	1.715E 01	4.488E 00	-6.216E 02	-7.046E 02	-5.285E 02	-1.761E 02	1.259E 03	4.119E 01	5.712E-02	1.078E 01	1.495E-02
4.128E 01	2.196E 01	4.959E 00	-6.970E 02	-7.965E 02	-5.812E 02	-2.154E 02	1.362E 03	5.274E 01	7.313E-02	1.191E 01	1.651E-02
4.134E 01	2.232E 01	4.994E 00	-7.029E 02	-8.042E 02	-5.854E 02	-2.187E 02	1.369E 03	5.360E 01	7.433E-02	1.199E 01	1.663E-02
4.150E 01	2.317E 01	5.468E 00	-7.173E 02	-8.226E 02	-5.958E 02	-2.268E 02	1.388E 03	5.566E 01	7.719E-02	1.313E 01	1.821E-02
4.246E 01	1.444E 01	8.404E 00	-7.680E 02	-9.437E 02	-6.642E 02	-2.795E 02	1.503E 03	3.467E 01	4.808E-02	2.018E 01	2.799E-02
4.406E 01	1.932E 01	1.331E 01	-7.945E 02	-1.159E 03	-7.816E 02	-3.778E 02	1.697E 03	4.641E 01	6.436E-02	3.197E 01	4.434E-02
4.431E 01	2.007E 01	1.568E 01	-7.987E 02	-1.193E 03	-7.991E 02	-3.943E 02	1.727E 03	4.820E 01	6.685E-02	3.765E 01	5.221E-02
4.478E 01	2.150E 01	2.021E 01	-8.017E 02	-1.261E 03	-8.324E 02	-4.290E 02	1.784E 03	5.164E 01	7.161E-02	4.853E 01	6.730E-02
4.480E 01	2.156E 01	2.040E 01	-8.016E 02	-1.264E 03	-8.338E 02	-4.306E 02	1.786E 03	5.178E 01	7.182E-02	4.899E 01	6.794E-02
4.625E 01	3.321E 01	3.438E 01	-7.506E 02	-1.489E 03	-9.335E 02	-5.551E 02	1.965E 03	7.975E 01	1.106E-01	8.257E 01	1.145E-01
4.626E 01	3.329E 01	3.448E 01	-7.501E 02	-1.490E 03	-9.342E 02	-5.560E 02	1.966E 03	7.994E 01	1.109E-01	8.280E 01	1.148E-01
4.730E 01	4.168E 01	4.458E 01	-6.476E 02	-1.656E 03	-1.003E 03	-6.534E 02	2.095E 03	1.001E 02	1.388E-01	1.070E 02	1.484E-01
4.731E 01	4.172E 01	4.451E 01	-6.502E 02	-1.657E 03	-1.003E 03	-6.538E 02	2.096E 03	1.002E 02	1.389E-01	1.069E 02	1.482E-01
4.811E 01	4.477E 01	3.794E 01	-5.507E 02	-1.774E 03	-1.054E 03	-7.194E 02	2.196E 03	1.075E 02	1.491E-01	9.112E 01	1.264E-01
4.874E 01	3.273E 01	3.273E 01	-4.474E 02	-1.852E 03	-1.094E 03	-7.587E 02	2.275E 03	7.861E 01	1.090E-01	7.861E 01	1.090E-01
4.875E 01	3.265E 01	3.265E 01	-4.457E 02	-1.854E 03	-1.094E 03	-7.592E 02	2.276E 03	7.841E 01	1.087E-01	7.841E 01	1.087E-01
4.928E 01	2.830E 01	2.830E 01	-3.615E 02	-1.910E 03	-1.127E 03	-7.832E 02	2.343E 03	6.796E 01	9.425E-02	6.796E 01	9.425E-02
5.069E 01	2.777E 01	2.777E 01	-1.543E 02	-2.071E 03	-1.209E 03	-8.617E 02	2.521E 03	6.669E 01	9.249E-02	6.669E 01	9.249E-02
5.279E 01	1.925E 01	1.925E 01	1.046E 02	-2.330E 03	-1.325E 03	-1.005E 03	2.787E 03	4.623E 01	6.411E-02	4.623E 01	6.411E-02
5.329E 01	1.837E 01	1.837E 01	1.535E 02	-2.387E 03	-1.351E 03	-1.036E 03	2.851E 03	4.411E 01	6.117E-02	4.411E 01	6.117E-02
5.404E 01	1.645E 01	1.645E 01	2.208E 02	-2.472E 03	-1.389E 03	-1.083E 03	2.946E 03	3.950E 01	5.477E-02	3.950E 01	5.477E-02
5.480E 01	1.450E 01	1.450E 01	2.808E 02	-2.556E 03	-1.426E 03	-1.130E 03	3.044E 03	3.482E 01	4.829E-02	3.482E 01	4.829E-02
5.576E 01	1.370E 01	1.370E 01	3.483E 02	-2.660E 03	-1.472E 03	-1.189E 03	3.167E 03	3.291E 01	4.564E-02	3.291E 01	4.564E-02
5.623E 01	1.331E 01	1.331E 01	5.139E 02	-2.708E 03	-1.490E 03	-1.218E 03	3.209E 03	3.197E 01	4.434E-02	3.197E 01	4.434E-02
5.628E 01	8.200E 00	1.327E 01	5.177E 02	-2.713E 03	-1.492E 03	-1.221E 03	3.217E 03	1.969E 01	2.731E-02	3.186E 01	4.419E-02
5.642E 01	8.200E 00	1.315E 01	5.263E 02	-2.727E 03	-1.497E 03	-1.230E 03	3.234E 03	1.969E 01	2.731E-02	3.158E 01	4.380E-02
5.650E 01	1.308E 01	1.308E 01	5.316E 02	-2.734E 03	-1.499E 03	-1.235E 03	3.245E 03	3.142E 01	4.357E-02	3.142E 01	4.357E-02
5.678E 01	1.285E 01	1.285E 01	5.485E 02	-2.759E 03	-1.508E 03	-1.251E 03	3.280E 03	3.086E 01	4.280E-02	3.086E 01	4.280E-02
5.701E 01	1.151E 01	1.151E 01	5.604E 02	-2.779E 03	-1.515E 03	-1.263E 03	3.309E 03	2.763E 01	3.832E-02	2.763E 01	3.832E-02
5.773E 01	7.200E 00	7.200E 00	5.857E 02	-2.838E 03	-1.537E 03	-1.301E 03	3.402E 03	1.729E 01	2.398E-02	1.729E 01	2.398E-02
5.875E 01	6.562E 00	6.562E 00	6.016E 02	-2.917E 03	-1.565E 03	-1.353E 03	3.532E 03	1.576E 01	2.186E-02	1.576E 01	2.186E-02
6.076E 01	1.365E 01	1.365E 01	6.040E 02	-3.070E 03	-1.617E 03	-1.453E 03	3.790E 03	3.278E 01	4.546E-02	3.278E 01	4.546E-02
6.218E 01	1.552E 01	1.552E 01	6.040E 02	-3.178E 03	-1.660E 03	-1.519E 03	3.972E 03	3.728E 01	5.171E-02	3.728E 01	5.171E-02
6.465E 01	1.603E 01	1.603E 01	6.040E 02	-3.402E 03	-1.764E 03	-1.638E 03	4.289E 03	3.851E 01	5.341E-02	3.851E 01	5.341E-02

READING = 0095 BLOCK = 99 TIME = 189.849 MACH 5.2 PT = 300.250 TT = 2937.7

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OR	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OR/PT0
6.502E 01	1.592E 01	1.611E 01	6.040E 02	-3.441E 03	-1.784E 03	-1.657E 03	4.337E 03	3.825E 01	5.304E-02	3.870E 01	5.366E-02
6.506E 01	1.592E 01	1.612E 01	6.040E 02	-3.445E 03	-1.786E 03	-1.659E 03	4.342E 03	3.825E 01	5.304E-02	3.872E 01	5.369E-02
6.526E 01	1.496E 01	1.616E 01	6.040E 02	-3.466E 03	-1.796E 03	-1.669E 03	4.368E 03	3.593E 01	4.983E-02	3.882E 01	5.383E-02
6.692E 01	6.975E 00	6.550E 00	7.287E 02	-3.602E 03	-1.865E 03	-1.737E 03	4.583E 03	1.675E 01	2.323E-02	1.573E 01	2.182E-02
6.759E 01	5.163E 00	6.457E 00	8.559E 02	-3.643E 03	-1.884E 03	-1.759E 03	4.665E 03	1.240E 01	1.719E-02	1.551E 01	2.151E-02
6.836E 01	3.080E 00	4.929E 00	9.893E 02	-3.685E 03	-1.901E 03	-1.784E 03	4.760E 03	7.397E 00	1.026E-02	1.184E 01	1.642E-02
6.908E 01	2.466E 00	3.500E 00	1.078E 03	-3.721E 03	-1.914E 03	-1.807E 03	4.848E 03	5.921E 00	8.212E-03	8.406E 00	1.166E-02
6.969E 01	1.945E 00	2.653E 00	1.135E 03	-3.749E 03	-1.923E 03	-1.827E 03	4.922E 03	4.671E 00	6.478E-03	6.372E 00	8.837E-03
7.064E 01	1.473E 00	1.335E 00	1.194E 03	-3.788E 03	-1.935E 03	-1.853E 03	5.036E 03	3.539E 00	4.907E-03	3.206E 00	4.446E-03
7.107E 01	1.260E 00	1.374E 00	1.213E 03	-3.803E 03	-1.941E 03	-1.863E 03	5.080E 03	3.026E 00	4.197E-03	3.301E 00	4.578E-03
7.260E 01	1.715E 00	1.515E 00	1.284E 03	-3.846E 03	-1.956E 03	-1.890E 03	5.273E 03	4.120E 00	5.713E-03	3.638E 00	5.046E-03
7.275E 01	1.760E 00	1.353E 00	1.291E 03	-3.849E 03	-1.957E 03	-1.892E 03	5.290E 03	4.227E 00	5.862E-03	3.250E 00	4.507E-03
7.350E 01	1.565E 00	5.450E-01	1.332E 03	-3.868E 03	-1.963E 03	-1.905E 03	5.374E 03	3.759E 00	5.213E-03	1.309E 00	1.815E-03
7.351E 01	1.564E 00	5.407E-01	1.333E 03	-3.868E 03	-1.963E 03	-1.905E 03	5.375E 03	3.757E 00	5.210E-03	1.299E 00	1.801E-03
7.483E 01	1.220E 00	0.000	1.363E 03	-3.903E 03	-1.972E 03	-1.931E 03	5.427E 03	2.930E 00	4.063E-03	0.000	0.000
7.768E 01	1.575E 00	0.000	1.419E 03	-3.882E 03	-1.985E 03	-1.896E 03	5.525E 03	3.783E 00	5.246E-03	0.000	0.000
8.158E 01	1.020E 00	0.000	1.474E 03	-3.893E 03	-1.997E 03	-1.896E 03	5.630E 03	2.450E 00	3.397E-03	0.000	0.000
8.439E 01	9.100E-01	0.000	1.496E 03	-3.901E 03	-2.005E 03	-1.896E 03	5.684E 03	2.185E 00	3.031E-03	0.000	0.000
8.725E 01	1.265E 00	0.000	1.522E 03	-3.915E 03	-2.018E 03	-1.896E 03	5.707E 03	3.038E 00	4.213E-03	0.000	0.000
8.726E 01	1.266E 00	0.000	1.522E 03	-3.915E 03	-2.018E 03	-1.896E 03	5.707E 03	3.040E 00	4.216E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.594E 01	9.594E 01	2.601E-03	3.479E-02
4.041E 01	1.264E-01	9.607E 01	2.614E-03	3.709E-02
4.128E 01	1.084E 01	1.069E 02	2.729E-03	3.927E-02
4.134E 01	8.056E-01	1.077E 02	2.737E-03	3.945E-02
4.150E 01	1.917E 00	1.096E 02	2.758E-03	3.988E-02
4.246E 01	1.168E 01	1.213E 02	2.827E-03	4.073E-02
4.406E 01	1.880E 01	1.401E 02	2.859E-03	3.990E-02
4.431E 01	2.788E 00	1.429E 02	2.863E-03	3.987E-02
4.478E 01	5.326E 00	1.482E 02	2.862E-03	3.970E-02
4.480E 01	2.276E-01	1.484E 02	2.862E-03	3.967E-02
4.625E 01	1.569E 01	1.641E 02	3.532E-03	4.260E-02
4.626E 01	9.435E-02	1.642E 02	3.084E-03	5.088E-02
4.730E 01	7.971E 00	1.722E 02	3.158E-03	5.019E-02
4.731E 01	3.780E-02	1.722E 02	3.158E-03	5.019E-02
4.811E 01	5.184E 00	1.774E 02	3.145E-03	4.941E-02
4.874E 01	4.662E 00	1.821E 02	3.591E-03	4.158E-02
4.875E 01	7.803E-02	1.822E 02	3.117E-03	5.020E-02
4.928E 01	3.888E 00	1.861E 02	3.036E-03	4.886E-02
5.069E 01	9.734E 00	1.958E 02	3.029E-03	4.561E-02
5.279E 01	1.378E 01	2.096E 02	3.027E-03	3.742E-02
5.329E 01	3.431E 00	2.130E 02	3.192E-03	3.406E-02
5.404E 01	5.224E 00	2.182E 02	3.179E-03	3.190E-02
5.480E 01	5.272E 00	2.235E 02	3.167E-03	2.956E-02
5.576E 01	6.467E 00	2.300E 02	3.147E-03	2.832E-02
5.623E 01	1.974E 00	2.319E 02	3.144E-03	2.567E-02
5.628E 01	3.088E-01	2.322E 02	3.330E-03	2.167E-02
5.642E 01	8.216E-01	2.331E 02	3.213E-03	2.236E-02
5.650E 01	4.659E-01	2.335E 02	3.471E-03	2.290E-02
5.678E 01	1.603E 00	2.351E 02	3.335E-03	2.364E-02
5.701E 01	1.305E 00	2.364E 02	3.315E-03	2.251E-02
5.773E 01	4.512E 00	2.410E 02	3.209E-03	1.758E-02
5.875E 01	6.370E 00	2.473E 02	2.873E-03	1.808E-02
6.076E 01	1.107E 01	2.584E 02	2.976E-03	2.726E-02
6.218E 01	7.507E 00	2.659E 02	3.363E-03	2.531E-02
6.465E 01	1.299E 01	2.789E 02	3.440E-03	2.435E-02
6.502E 01	1.793E 00	2.807E 02	3.514E-03	2.305E-02
6.506E 01	1.824E-01	2.809E 02	3.585E-03	2.341E-02
6.526E 01	9.293E-01	2.818E 02	3.577E-03	2.331E-02
6.692E 01	8.095E 00	2.899E 02	3.416E-03	1.621E-02
6.759E 01	3.068E 00	2.930E 02	3.391E-03	1.479E-02
6.836E 01	3.251E 00	2.962E 02	3.335E-03	1.165E-02
6.908E 01	2.627E 00	2.988E 02	3.289E-03	9.521E-03
6.969E 01	1.935E 00	3.008E 02	3.251E-03	7.921E-03
7.064E 01	2.454E 00	3.032E 02	3.181E-03	5.523E-03
7.107E 01	9.464E-01	3.042E 02	3.170E-03	5.262E-03
7.260E 01	3.491E 00	3.077E 02	3.192E-03	6.104E-03
7.275E 01	3.420E-01	3.080E 02	3.186E-03	5.939E-03
7.350E 01	1.486E 00	3.095E 02	3.129E-03	4.436E-03
7.351E 01	2.520E-03	3.095E 02	3.129E-03	4.427E-03
7.483E 01	8.427E-01	3.103E 02	3.141E-03	4.935E-03
7.768E 01	1.794E 00	3.121E 02	3.161E-03	5.936E-03
8.158E 01	1.815E 00	3.139E 02	3.081E-03	4.258E-03
8.439E 01	7.907E-01	3.147E 02	3.051E-03	3.885E-03
8.725E 01	3.505E-01	3.151E 02	3.083E-03	4.960E-03
8.726E 01	0.000	3.151E 02	3.083E-03	4.962E-03

READING = 0095 BLOCK = 99 TIME = 189.849 MACH 5.2 PT = 300.250 TT = 2937.7

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1119.	(LBF)
MEASURED THRUST	1104.	(LBF)
CALCULATED SPECIFIC IMPULSE	1843.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1818.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5771	
MEASURED THRUST COEFFICIENT	0.5693	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4686.	(LBF)
NET THRUST	1201.	(LBF)
SPECIFIC IMPULSE	1976.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6190	

MOMENTUM AND FORCES

INLET FRICTION DRAG	95.9	(LBF)
INLET MOMENTUM CHANGE	-716.9	(LBF)
COMBUSTOR FRICTION DRAG	184.7	(LBF)
COMBUSTOR STRUT DRAG	7.88	(LBF)
COMBUSTOR MOMENTUM CHANGE	953.	(LBF)
NOZZLE FRICTION DRAG	34.40	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	883.	(LBF)
NOZZLE PRESSURE INTEGRAL	918.	(LBF)
EXTERNAL FRICTION DRAG	36.89	(LBF)
EXTERNAL PRESSURE INTEGRAL	-958.	(LBF)
TOTAL EXTERNAL DRAG	-995.	(LBF)
TOTAL STRUT DRAG	7.88	(LBF)
CAVITY FORCE	-1361.	(LBF)
CALCULATED LOAD CELL FORCE	-1236.	(LBF)
MEASURED LOAD CELL FORCE	-1252.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-149.7, -120.7,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2849	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	87.261	(IN)
STRUT LEADING EDGE	56.425	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	65.025	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8655	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2533	
DELTA PT2	0.0917	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3992	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2578	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8990	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9143	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.8984	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8669	
ENTHALPY AT P0 - SUPERSONIC	26.02	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	46.63	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0320
EQUIVALENCE RATIO	0.995
COMBUSTOR EFFICIENCY	0.742
TOTAL PRESSURE RATIO	0.2425
COMBUSTOR EFFECTIVENESS	0.7523
INJECTOR DISCHARGE COEFFICIENTS	0.8557, 0.7729,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9472
NOZZLE COEFFICIENT - CT	0.8696
PROCESS EFFICIENCY	0.8771
KINETIC ENERGY EFFICIENCY	0.8812

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.270	
1C	44.300	
2A	48.745	D
2C	46.250	E
3A	54.035	
3B	56.220	
4	44.770	

Reading 95

t = 196.15 sec.

READING = 0095 BLOCK = 106 TIME = 196.149 MACH 5.2 PT = 300.500 TT = 2940.4

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	300.500	2940	652.0(778)	1.2950	28.919	2559											
0.000	0.384	512	-5.9(123)	1.3989	28.919	1110	5.170	5738	1.884	0.08054	17.854	0.8655	3269	7.181	183.1		
SPIKE TIP NS		2	0 7														
0.600	14.287	2940	652.0(778)	1.2949	28.919	2558											
0.600	13.058	2880	634.0(760)	1.2968	28.919	2534	0.375	949	2.093	0.08054	17.854	0.8655	3422	1.188	191.6		
WIND TUNNEL		3	0 0														
0.000	300.500	2940	652.0(778)	1.2950	28.919	2559											
0.000	0.417	524	-3.0(126)	1.3987	28.919	1123	5.099	5725	1.884	0.08519	18.886	0.8655	3453	7.580	182.8		
SPIKE TIP NS		4	0 0														
0.600	14.287	2940	652.0(778)	1.2949	28.919	2558											
0.600	12.890	2872	631.4(758)	1.2971	28.919	2531	0.401	1014	2.093	0.08519	18.886	0.8655	3453	1.343	182.8		
INLET THROAT		5	0 4														
40.400	121.094	2809	612.7(739)	1.2991	28.919	2505											
40.400	13.512	1651	282.9(412)	1.3404	28.919	1951	2.083	4062	1.933	0.62212	18.886	0.1128	2772	41.544	146.8		
INLET UPNRSK		6	0 3														
40.400	121.094	2809	612.7(739)	1.2991	28.919	2505											
40.400	12.626	1623	275.3(404)	1.3418	28.919	1935	2.124	4109	1.933	0.59825	18.886	0.1233	2811	38.202	148.8		
INLET DNNRSK		7	0 4														
40.400	77.527	2809	612.7(739)	1.2991	28.919	2505											
40.400	64.099	2688	576.8(704)	1.3030	28.919	2454	0.546	1341	1.964	0.59825	18.886	0.1233	2811	12.465	148.8		
COMBUSTOR	0	8	1 4														
40.410	121.185	2809	612.6(739)	1.2991	28.919	2505											
40.410	14.900	1692	294.0(423)	1.3384	28.919	1973	2.024	3993	1.933	0.65799	18.886	0.1121	2772	40.830	146.7		
COMBUSTOR	0	9	2 4														
41.280	102.149	2792	607.6(734)	1.2997	28.919	2498											
41.280	17.156	1818	328.4(457)	1.3330	28.919	2041	1.831	3737	1.943	0.65993	18.886	0.1117	2685	38.324	142.1		
COMBUSTOR	0	10	3 4														
41.345	100.922	2791	607.1(734)	1.2997	28.919	2497											
41.345	17.353	1828	331.1(460)	1.3326	28.919	2046	1.816	3716	1.943	0.66030	18.886	0.1117	2678	38.133	141.8		
COMBUSTOR	0	11	4 4														
41.500	98.079	2787	606.1(733)	1.2998	28.919	2496											
41.500	17.846	1851	337.6(467)	1.3317	28.919	2059	1.781	3665	1.945	0.66127	18.886	0.1115	2661	37.666	140.9		
COMBUSTOR	0	12	5 5														
42.460	87.719	2764	599.3(726)	1.3005	28.919	2486											
42.460	19.409	1926	358.4(487)	1.3289	28.919	2098											
							1.655	3472	1.950	0.65477	18.886	0.1126	2598	35.331	137.6		
COMBUSTOR	0	13	6 4														
44.065	80.460	2724	587.3(714)	1.3018	28.919	2469											
44.065	19.588	1941	362.6(491)	1.3283	28.919	2106	1.593	3353	1.952	0.63314	18.886	0.1165	2553	32.993	135.2		
COMBUSTOR	0	14	7 3														
44.310	79.583	2718	585.4(713)	1.3020	28.919	2466											
44.310	19.688	1944	363.4(492)	1.3282	28.919	2107	1.582	3333	1.952	0.63161	18.886	0.1167	2545	32.717	134.8		
COMBUSTOR	0	15	8 3														
44.780	78.299	2707	582.2(709)	1.3024	28.919	2462											
44.780	19.812	1947	364.1(493)	1.3281	28.919	2108	1.567	3303	1.952	0.62916	18.886	0.1172	2534	32.300	134.2		
COMBUSTOR	0	16	9 2														
44.800	78.239	2706	582.0(709)	1.3024	28.919	2462											
44.800	19.807	1947	364.0(493)	1.3281	28.919	2108	1.567	3303	1.952	0.62883	18.886	0.1173	2534	32.275	134.1		
COMBUSTOR	0	17	10 21														
46.250	61.158	2620	593.1(789)	1.3093	24.928	2616											
46.250	26.958	2151	437.7(635)	1.3253	24.928	2384	1.169	2788	2.212	0.60014	19.125	0.1244	2516	26.002	131.6	8.40	0.07
COMBUSTOR	0	18	11 4														
46.260	64.014	2485	593.0(746)	1.3154	24.799	2560											
46.260	27.008	2012	438.0(592)	1.3318	24.799	2318	1.202	2785	2.193	0.59984	19.125	0.1245	2517	25.963	131.6	8.40	0.01

READING = 0095 BLOCK = 106 TIME = 196.149 MACH 5.2 PT = 300.500 TT = 2940.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.305	60.012	2708	587.4(817)	1.3051	25.031	2649											
47.305	32.185	2335	462.9(693)	1.3176	25.031	2472	1.010	2496	2.221	0.55724	19.125	0.1340	2588	21.617	135.3	0.40	0.13
COMBUSTOR	0	20	13 2														
47.310	60.076	2703	587.4(815)	1.3052	25.027	2648											
47.310	32.180	2331	462.8(692)	1.3178	25.027	2470	1.011	2497	2.221	0.55824	19.125	0.1338	2587	21.660	135.2	0.40	0.13
COMBUSTOR	0	21	14 4														
48.110	57.621	2858	583.3(865)	1.2980	25.193	2706											
48.110	33.190	2513	466.5(750)	1.3095	25.193	2549	0.948	2417	2.237	0.52030	19.125	0.1435	2657	19.542	138.9	0.40	0.21
COMBUSTOR	0	22	15 12														
48.745	54.199	2469	602.0(848)	1.3188	21.589	2738											
48.745	26.240	2065	451.0(698)	1.3330	21.589	2518	1.092	2749	2.462	0.48790	19.395	0.1552	2700	20.843	139.2	0.85	0.06
COMBUSTOR	0	23	16 2														
48.755	54.158	2471	601.9(849)	1.3187	21.591	2739											
48.755	26.186	2067	450.5(698)	1.3329	21.591	2519	1.093	2752	2.463	0.48726	19.395	0.1554	2701	20.842	139.3	0.85	0.06
COMBUSTOR	0	24	17 4														
49.285	52.309	2571	599.5(885)	1.3140	21.680	2783											
49.285	23.325	2112	426.6(713)	1.3300	21.680	2538	1.159	2941	2.478	0.45571	19.395	0.1662	2766	20.829	142.6	0.85	0.09
COMBUSTOR	0	25	18 5														
50.695	46.897	2979	592.2(1034)	1.2948	22.048	2949											
50.695	26.325	2607	447.0(891)	1.3075	22.049	2772	0.972	2695	2.528	0.38839	19.395	0.1950	2939	16.268	151.6	0.85	0.20
COMBUSTOR	0	26	19 8														
52.795	42.032	3432	576.9(1207)	1.2715	22.386	3113											
52.795	19.600	2903	362.7(1000)	1.2908	22.390	2885	1.135	3273	2.583	0.32020	19.509	0.2379	3179	16.289	163.0	0.86	0.34
COMBUSTOR	0	27	20 4														
53.295	41.042	3531	574.1(1244)	1.2659	22.487	3144											
53.295	18.717	2980	348.6(1028)	1.2866	22.493	2911	1.154	3359	2.591	0.30712	19.509	0.2480	3226	16.031	165.3	0.86	0.37
COMBUSTOR	0	28	21 4														
54.045	39.783	3656	570.0(1291)	1.2584	22.618	3180											
54.045	17.243	3061	323.7(1057)	1.2817	22.628	2936	1.195	3510	2.601	0.28950	19.509	0.2631	3290	15.791	168.7	0.86	0.41
COMBUSTOR	0	29	22 4														
54.805	38.751	3754	565.7(1328)	1.2522	22.724	3207											
54.805	15.750	3109	296.1(1073)	1.2783	22.739	2948	1.246	3673	2.609	0.27376	19.509	0.2782	3349	15.625	171.7	0.86	0.44
COMBUSTOR	0	30	23 4														
55.760	37.675	3849	560.3(1364)	1.2459	22.832	3231											
55.760	14.134	3144	262.7(1084)	1.2754	22.853	2954	1.307	3859	2.616	0.25654	19.509	0.2969	3415	15.385	175.0	0.86	0.48
COMBUSTOR	0	31	24 5														
56.230	31.364	4369	557.8(1563)	1.2051	23.384	3346											
56.230	13.339	3756	263.3(1313)	1.2374	23.468	3138	1.223	3839	2.656	0.20704	19.509	0.3679	3584	12.351	183.7	0.86	0.66
COMBUSTOR	0	32	25 4														
56.285	33.017	4148	557.5(1478)	1.2234	23.149	3302											
56.285	10.923	3349	202.5(1158)	1.2617	23.201	3009	1.401	4215	2.642	0.20642	19.509	0.3690	3588	13.521	183.9	0.86	0.58
COMBUSTOR	0	33	26 3														
56.425	32.944	4158	556.8(1482)	1.2226	23.161	3304											
56.425	10.805	3353	198.5(1159)	1.2613	23.215	3009	1.407	4234	2.642	0.20498	19.509	0.3716	3596	13.487	184.3	0.86	0.58
COMBUSTOR	0	34	27 5														
56.505	31.841	4365	556.4(1561)	1.2055	23.383	3345											
56.505	12.874	3716	246.2(1297)	1.2396	23.469	3124	1.261	3940	2.654	0.20731	19.509	0.3674	3600	12.692	184.5	0.86	0.66
COMBUSTOR	0	35	28 3														
56.785	32.169	4358	555.1(1558)	1.2062	23.379	3343											
56.785	12.400	3674	230.4(1281)	1.2419	23.465	3109	1.296	4030	2.653	0.20655	19.509	0.3688	3615	12.937	185.3	0.86	0.66
COMBUSTOR	0	36	29 4														
57.011	33.212	4256	554.0(1519)	1.2149	23.272	3324											
57.011	11.210	3473	196.5(1204)	1.2541	23.342	3046	1.389	4229	2.646	0.20624	19.509	0.3693	3625	13.555	185.8	0.86	0.62
COMBUSTOR	0	37	30 6														
57.735	40.506	3751	550.8(1327)	1.2521	22.757	3203											
57.735	7.400	2600	83.1(877)	1.2963	22.774	2712	1.784	4838	2.603	0.20296	19.509	0.3753	3645	15.260	186.8	0.86	0.45

READING = 0095 BLOCK = 106 TIME = 196.149 MACH 5.2 PT = 300.500 TT = 2940.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 5														
58.755	34.172	4196	546.5(1496)	1.2198	23.226	3310											
58.755	9.975	3310	152.4(1141)	1.2623	23.288	2987	1.487	4441	2.639	0.20167	19.509	0.3777	3658	13.919	187.5	0.86	0.60
COMBUSTOR	0	39	32 5														
60.765	32.120	4559	538.1(1635)	1.1884	23.642	3376											
60.765	14.062	3988	242.2(1401)	1.2186	23.772	3188	1.207	3848	2.657	0.20869	19.509	0.3658	3648	12.479	187.0	0.86	0.75
COMBUSTOR	0	40	33 4														
62.185	32.404	4633	532.0(1663)	1.1819	23.740	3387											
62.185	16.144	4163	276.2(1469)	1.2058	23.875	3233	1.107	3577	2.658	0.21435	19.509	0.3553	3639	11.917	186.5	0.86	0.78
COMBUSTOR	0	41	34 2														
64.649	30.519	4610	519.8(1653)	1.1825	23.744	3378											
64.649	15.589	4157	274.1(1466)	1.2058	23.874	3231	1.085	3507	2.660	0.20318	19.509	0.3749	3623	11.072	185.7	0.86	0.78
COMBUSTOR	0	42	35 3														
65.025	28.273	4625	517.7(1659)	1.1798	23.767	3379											
65.025	15.414	4222	294.0(1492)	1.2002	23.895	3247	1.031	3346	2.667	0.18889	19.509	0.4032	3621	9.822	185.6	0.86	0.80
COMBUSTOR	REGEN	43	36 21														
65.025	28.273	4777	622.7(1723)	1.1699	23.669	3426											
65.025	28.089	4773	620.1(1722)	1.1700	23.671	3425	0.106	364	2.689	0.18889	19.509	0.4032	3122	1.069	160.0	0.86	0.80
NOZZLE	AE	44	37 4														
87.261	28.273	4625	517.7(1618)	1.1798	23.767	3379											
87.261	0.845	2371	-489.9(770)	1.2894	24.013	2516	2.823	7101	2.667	0.03932	19.509	1.9372	4725	4.339	242.2	0.86	0.80
NOZZLE	PO	45	38 4														
87.261	28.273	4625	517.7(1618)	1.1798	23.767	3379											
87.261	0.417	2017	-617.9(642)	1.3035	24.013	2333	3.231	7538	2.667	0.02421	19.509	3.1465	4907	2.836	251.5	0.86	0.80
NOZZLE	AE REGEN	46	39 4														
87.261	28.273	4777	622.7(1723)	1.1699	23.669	3426											
87.261	0.890	2547	-424.4(835)	1.2828	24.012	2601	2.783	7238	2.689	0.03932	19.509	1.9372	4831	4.423	247.6	0.86	0.80
NOZZLE	PO REGEN	47	40 4														
87.261	28.273	4777	622.7(1723)	1.1699	23.669	3426											
87.261	0.417	2147	-571.5(689)	1.2981	24.013	2402	3.218	7730	2.689	0.02332	19.509	3.2658	5036	2.802	258.1	0.86	0.80
FICTIVE	COMBUSTR	67	60 0														
65.025	121.094	5137	517.7(1858)	1.1636	24.337	3494											
65.025	0.417	1757	-999.3(541)	1.3071	24.824	2144	4.063	8713	2.551	0.03321	19.509	2.2934	5528	4.497	283.4	0.86	1.00
FICTIVE	NOZZLE	68	61 0														
87.261	18.785	4551	486.1(1629)	1.1782	23.766	3349											
87.261	1.021	2659	-381.9(877)	1.2785	24.012	2653	2.484	6590	2.694	0.03932	19.509	1.9371	4503	4.027	230.8	0.86	0.80

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.981E-01	1.065E 00	0.000	-3.503E-01	0.000	0.000	0.000	2.470E-02	2.555E 00	3.544E-03	0.000	0.000
1.836E 01	1.065E 00	0.000	-3.537E 01	0.000	0.000	0.000	1.634E 02	2.555E 00	3.544E-03	0.000	0.000
3.070E 01	1.895E 00	0.000	-1.554E 02	0.000	0.000	0.000	5.053E 02	4.546E 00	6.306E-03	0.000	0.000
3.508E 01	3.084E 00	0.000	-3.167E 02	0.000	0.000	0.000	6.804E 02	7.400E 00	1.026E-02	0.000	0.000
3.516E 01	3.115E 00	4.357E 00	-3.644E 02	0.000	0.000	0.000	6.841E 02	7.474E 00	1.037E-02	1.045E 01	1.450E-02
3.517E 01	3.118E 00	4.342E 00	-3.645E 02	0.000	0.000	0.000	6.843E 02	7.479E 00	1.037E-02	1.042E 01	1.445E-02
3.555E 01	3.260E 00	3.388E 00	-3.710E 02	0.000	0.000	0.000	7.225E 02	7.821E 00	1.085E-02	8.129E 00	1.128E-02
3.583E 01	3.277E 00	2.675E 00	-3.799E 02	-3.909E 02	-3.909E 02	0.000	7.515E 02	7.861E 00	1.090E-02	6.417E 00	8.902E-03
3.606E 01	3.290E 00	3.662E 00	-3.873E 02	-3.959E 02	-3.959E 02	0.000	7.745E 02	7.893E 00	1.095E-02	8.784E 00	1.219E-02
3.648E 01	3.533E 00	5.503E 00	-3.972E 02	-4.056E 02	-4.056E 02	0.000	8.183E 02	8.476E 00	1.176E-02	1.320E 01	1.831E-02
3.701E 01	3.345E 00	7.826E 00	-4.085E 02	-4.631E 02	-4.184E 02	-4.467E 01	8.743E 02	8.025E 00	1.113E-02	1.877E 01	2.604E-02
3.729E 01	4.279E 00	9.075E 00	-4.146E 02	-4.837E 02	-4.256E 02	-5.805E 01	9.048E 02	1.027E 01	1.424E-02	2.177E 01	3.020E-02
3.803E 01	6.690E 00	1.085E 01	-4.550E 02	-5.371E 02	-4.451E 02	-9.198E 01	9.851E 02	1.605E 01	2.226E-02	2.603E 01	3.611E-02
3.831E 01	8.732E 00	1.154E 01	-4.743E 02	-5.585E 02	-4.534E 02	-1.051E 02	1.017E 03	2.095E 01	2.906E-02	2.768E 01	3.839E-02
3.875E 01	1.185E 01	1.185E 01	-5.099E 02	-5.927E 02	-4.677E 02	-1.250E 02	1.066E 03	2.843E 01	3.943E-02	2.843E 01	3.943E-02
3.878E 01	1.210E 01	1.187E 01	-5.127E 02	-5.955E 02	-4.689E 02	-1.266E 02	1.070E 03	2.903E 01	4.027E-02	2.849E 01	3.952E-02
3.901E 01	1.371E 01	1.269E 01	-5.288E 02	-6.141E 02	-4.773E 02	-1.368E 02	1.096E 03	3.290E 01	4.563E-02	3.045E 01	4.223E-02
3.929E 01	1.344E 01	1.372E 01	-5.450E 02	-6.385E 02	-4.887E 02	-1.498E 02	1.129E 03	3.223E 01	4.471E-02	3.293E 01	4.567E-02
3.950E 01	1.324E 01	9.718E 00	-5.542E 02	-6.567E 02	-4.976E 02	-1.591E 02	1.152E 03	3.176E 01	4.405E-02	2.331E 01	3.234E-02
3.978E 01	1.417E 01	4.150E 00	-5.717E 02	-6.827E 02	-5.109E 02	-1.718E 02	1.185E 03	3.399E 01	4.715E-02	9.956E 00	1.381E-02
4.000E 01	1.487E 01	4.226E 00	-5.886E 02	-7.030E 02	-5.218E 02	-1.812E 02	1.211E 03	3.567E 01	4.948E-02	1.014E 01	1.406E-02
4.040E 01	1.707E 01	4.368E 00	-6.205E 02	-7.421E 02	-5.434E 02	-1.987E 02	1.257E 03	4.096E 01	5.682E-02	1.048E 01	1.454E-02
4.041E 01	1.713E 01	4.372E 00	-6.212E 02	-7.431E 02	-5.440E 02	-1.991E 02	1.259E 03	4.109E 01	5.700E-02	1.049E 01	1.455E-02
4.128E 01	2.192E 01	4.680E 00	-6.973E 02	-8.400E 02	-5.966E 02	-2.435E 02	1.362E 03	5.260E 01	7.296E-02	1.123E 01	1.557E-02
4.134E 01	2.228E 01	4.703E 00	-7.034E 02	-8.481E 02	-6.008E 02	-2.473E 02	1.369E 03	5.346E 01	7.415E-02	1.128E 01	1.565E-02
4.150E 01	2.314E 01	5.195E 00	-7.179E 02	-8.676E 02	-6.112E 02	-2.564E 02	1.388E 03	5.551E 01	7.700E-02	1.246E 01	1.729E-02
4.246E 01	1.436E 01	8.240E 00	-7.694E 02	-9.955E 02	-6.794E 02	-3.160E 02	1.503E 03	3.446E 01	4.780E-02	1.977E 01	2.742E-02
4.406E 01	1.928E 01	1.333E 01	-7.961E 02	-1.223E 03	-7.959E 02	-4.270E 02	1.697E 03	4.624E 01	6.414E-02	3.198E 01	4.436E-02
4.431E 01	2.003E 01	1.490E 01	-8.006E 02	-1.257E 03	-8.131E 02	-4.442E 02	1.727E 03	4.804E 01	6.664E-02	3.573E 01	4.957E-02
4.478E 01	2.146E 01	1.790E 01	-8.066E 02	-1.319E 03	-8.460E 02	-4.730E 02	1.784E 03	5.149E 01	7.143E-02	4.293E 01	5.955E-02
4.480E 01	2.152E 01	1.802E 01	-8.067E 02	-1.322E 03	-8.474E 02	-4.741E 02	1.786E 03	5.164E 01	7.163E-02	4.324E 01	5.998E-02
4.625E 01	2.664E 01	2.728E 01	-7.718E 02	-1.487E 03	-9.455E 02	-5.411E 02	1.965E 03	6.390E 01	8.864E-02	6.544E 01	9.078E-02
4.626E 01	2.667E 01	2.734E 01	-7.713E 02	-1.488E 03	-9.462E 02	-5.414E 02	1.966E 03	6.399E 01	8.876E-02	6.560E 01	9.099E-02
4.730E 01	3.036E 01	3.401E 01	-6.901E 02	-1.595E 03	-1.014E 03	-5.804E 02	2.095E 03	7.283E 01	1.010E-01	8.160E 01	1.132E-01
4.731E 01	3.037E 01	3.398E 01	-6.919E 02	-1.595E 03	-1.015E 03	-5.806E 02	2.096E 03	7.287E 01	1.011E-01	8.153E 01	1.131E-01
4.811E 01	3.671E 01	2.967E 01	-6.154E 02	-1.674E 03	-1.065E 03	-6.091E 02	2.196E 03	8.807E 01	1.222E-01	7.117E 01	9.873E-02
4.874E 01	2.624E 01	2.624E 01	-5.341E 02	-1.734E 03	-1.104E 03	-6.297E 02	2.275E 03	6.295E 01	8.732E-02	6.295E 01	8.732E-02
4.875E 01	2.619E 01	2.619E 01	-5.327E 02	-1.735E 03	-1.105E 03	-6.300E 02	2.276E 03	6.282E 01	8.714E-02	6.282E 01	8.714E-02
4.928E 01	2.332E 01	2.332E 01	-4.643E 02	-1.783E 03	-1.137E 03	-6.459E 02	2.343E 03	5.596E 01	7.762E-02	5.596E 01	7.762E-02
5.069E 01	2.632E 01	2.632E 01	-2.808E 02	-1.924E 03	-1.220E 03	-7.038E 02	2.521E 03	6.315E 01	8.760E-02	6.315E 01	8.760E-02
5.279E 01	1.960E 01	1.960E 01	-2.798E 01	-2.155E 03	-1.336E 03	-8.191E 02	2.787E 03	4.702E 01	6.522E-02	4.702E 01	6.522E-02
5.329E 01	1.872E 01	1.872E 01	2.182E 01	-2.209E 03	-1.362E 03	-8.470E 02	2.851E 03	4.490E 01	6.229E-02	4.490E 01	6.229E-02
5.404E 01	1.724E 01	1.724E 01	9.140E 01	-2.291E 03	-1.401E 03	-8.896E 02	2.946E 03	4.137E 01	5.738E-02	4.137E 01	5.738E-02
5.480E 01	1.575E 01	1.575E 01	1.553E 02	-2.374E 03	-1.439E 03	-9.346E 02	3.044E 03	3.778E 01	5.241E-02	3.778E 01	5.241E-02
5.576E 01	1.413E 01	1.413E 01	2.269E 02	-2.479E 03	-1.485E 03	-9.938E 02	3.167E 03	3.391E 01	4.704E-02	3.391E 01	4.704E-02
5.623E 01	1.334E 01	1.334E 01	3.985E 02	-2.529E 03	-1.504E 03	-1.024E 03	3.209E 03	3.200E 01	4.439E-02	3.200E 01	4.439E-02
5.628E 01	8.600E 00	1.325E 01	4.022E 02	-2.534E 03	-1.506E 03	-1.028E 03	3.217E 03	2.063E 01	2.862E-02	3.178E 01	4.408E-02
5.642E 01	8.600E 00	1.301E 01	4.108E 02	-2.548E 03	-1.511E 03	-1.037E 03	3.234E 03	2.063E 01	2.862E-02	3.121E 01	4.329E-02
5.650E 01	1.287E 01	1.287E 01	4.160E 02	-2.555E 03	-1.514E 03	-1.042E 03	3.245E 03	3.088E 01	4.284E-02	3.088E 01	4.284E-02
5.678E 01	1.240E 01	1.240E 01	4.325E 02	-2.581E 03	-1.523E 03	-1.059E 03	3.280E 03	2.975E 01	4.126E-02	2.975E 01	4.126E-02
5.701E 01	1.121E 01	1.121E 01	4.440E 02	-2.602E 03	-1.530E 03	-1.072E 03	3.309E 03	2.689E 01	3.731E-02	2.689E 01	3.731E-02
5.773E 01	7.400E 00	7.400E 00	4.692E 02	-2.663E 03	-1.552E 03	-1.111E 03	3.402E 03	1.775E 01	2.463E-02	1.775E 01	2.463E-02
5.875E 01	9.975E 00	9.975E 00	4.893E 02	-2.747E 03	-1.581E 03	-1.165E 03	3.532E 03	2.393E 01	3.319E-02	2.393E 01	3.319E-02
6.076E 01	1.406E 01	1.406E 01	4.921E 02	-2.913E 03	-1.636E 03	-1.277E 03	3.790E 03	3.374E 01	4.680E-02	3.374E 01	4.680E-02
6.218E 01	1.614E 01	1.614E 01	4.921E 02	-3.032E 03	-1.680E 03	-1.352E 03	3.972E 03	3.873E 01	5.372E-02	3.873E 01	5.372E-02
6.465E 01	1.559E 01	1.559E 01	4.921E 02	-3.269E 03	-1.784E 03	-1.485E 03	4.289E 03	3.740E 01	5.188E-02	3.740E 01	5.188E-02

READING = 0095 BLOCK = 106 TIME = 196.149 MACH 5.2 PT = 300.500 TT = 2940.4

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.502E 01	1.532E 01	1.550E 01	4.921E 02	-3.309E 03	-1.803E 03	-1.506E 03	4.337E 03	3.677E 01	5.100E-02	3.719E 01	5.159E-02
6.506E 01	1.532E 01	1.550E 01	4.921E 02	-3.313E 03	-1.805E 03	-1.508E 03	4.342E 03	3.677E 01	5.100E-02	3.717E 01	5.156E-02
6.526E 01	1.439E 01	1.545E 01	4.921E 02	-3.334E 03	-1.816E 03	-1.519E 03	4.368E 03	3.451E 01	4.787E-02	3.707E 01	5.141E-02
6.692E 01	6.587E 00	6.425E 00	6.119E 02	-3.474E 03	-1.883E 03	-1.591E 03	4.583E 03	1.580E 01	2.192E-02	1.541E 01	2.138E-02
6.759E 01	4.909E 00	6.187E 00	7.338E 02	-3.516E 03	-1.902E 03	-1.614E 03	4.665E 03	1.178E 01	1.634E-02	1.484E 01	2.059E-02
6.836E 01	2.980E 00	4.752E 00	8.618E 02	-3.560E 03	-1.919E 03	-1.641E 03	4.760E 03	7.149E 00	9.917E-03	1.140E 01	1.581E-02
6.908E 01	2.417E 00	3.410E 00	9.479E 02	-3.600E 03	-1.932E 03	-1.668E 03	4.848E 03	5.798E 00	8.043E-03	8.181E 00	1.135E-02
6.969E 01	1.940E 00	2.601E 00	1.004E 03	-3.632E 03	-1.942E 03	-1.690E 03	4.922E 03	4.654E 00	6.456E-03	6.239E 00	8.654E-03
7.064E 01	1.486E 00	1.340E 00	1.062E 03	-3.677E 03	-1.956E 03	-1.721E 03	5.036E 03	3.564E 00	4.944E-03	3.215E 00	4.459E-03
7.107E 01	1.280E 00	1.369E 00	1.082E 03	-3.695E 03	-1.961E 03	-1.734E 03	5.088E 03	3.071E 00	4.260E-03	3.283E 00	4.554E-03
7.260E 01	2.141E 00	1.470E 00	1.158E 03	-3.745E 03	-1.979E 03	-1.767E 03	5.273E 03	5.135E 00	7.124E-03	3.527E 00	4.892E-03
7.275E 01	2.225E 00	1.316E 00	1.166E 03	-3.749E 03	-1.980E 03	-1.769E 03	5.290E 03	5.338E 00	7.404E-03	3.157E 00	4.379E-03
7.350E 01	1.900E 00	5.450E-01	1.212E 03	-3.772E 03	-1.987E 03	-1.785E 03	5.374E 03	4.559E 00	6.324E-03	1.307E 00	1.814E-03
7.351E 01	1.899E 00	5.409E-01	1.213E 03	-3.772E 03	-1.987E 03	-1.785E 03	5.375E 03	4.555E 00	6.319E-03	1.298E 00	1.800E-03
7.483E 01	1.325E 00	0.000	1.248E 03	-3.814E 03	-1.998E 03	-1.816E 03	5.427E 03	3.179E 00	4.409E-03	0.000	0.000
7.768E 01	1.535E 00	0.000	1.305E 03	-3.875E 03	-2.015E 03	-1.860E 03	5.525E 03	3.683E 00	5.108E-03	0.000	0.000
8.158E 01	1.035E 00	0.000	1.360E 03	-3.891E 03	-2.031E 03	-1.860E 03	5.630E 03	2.483E 00	3.444E-03	0.000	0.000
8.439E 01	9.300E-01	0.000	1.381E 03	-3.903E 03	-2.044E 03	-1.860E 03	5.684E 03	2.231E 00	3.095E-03	0.000	0.000
8.725E 01	1.265E 00	0.000	1.408E 03	-3.925E 03	-2.065E 03	-1.860E 03	5.707E 03	3.035E 00	4.210E-03	0.000	0.000
8.726E 01	1.266E 00	0.000	1.408E 03	-3.925E 03	-2.066E 03	-1.860E 03	5.707E 03	3.036E 00	4.212E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.592E 01	9.592E 01	2.594E-03	3.465E-02
4.041E 01	1.265E-01	9.604E 01	2.606E-03	3.696E-02
4.128E 01	1.085E 01	1.069E 02	2.722E-03	3.916E-02
4.134E 01	8.061E-01	1.077E 02	2.731E-03	3.933E-02
4.150E 01	1.919E 00	1.096E 02	2.752E-03	3.977E-02
4.246E 01	1.169E 01	1.213E 02	2.821E-03	4.062E-02
4.406E 01	1.882E 01	1.401E 02	2.852E-03	3.976E-02
4.431E 01	2.793E 00	1.429E 02	2.860E-03	3.978E-02
4.478E 01	5.342E 00	1.483E 02	2.872E-03	3.979E-02
4.480E 01	2.283E-01	1.485E 02	2.872E-03	3.977E-02
4.625E 01	1.649E 01	1.650E 02	3.481E-03	4.003E-02
4.626E 01	1.070E-01	1.651E 02	3.094E-03	4.663E-02
4.730E 01	9.442E 00	1.745E 02	3.036E-03	4.996E-02
4.731E 01	4.804E-02	1.746E 02	3.161E-03	4.748E-02
4.811E 01	6.476E 00	1.811E 02	3.145E-03	4.700E-02
4.874E 01	5.377E 00	1.864E 02	3.557E-03	3.825E-02
4.875E 01	8.637E-02	1.865E 02	3.058E-03	4.651E-02
4.928E 01	4.192E 00	1.907E 02	2.994E-03	4.445E-02
5.069E 01	9.898E 00	2.006E 02	3.016E-03	4.332E-02
5.279E 01	1.312E 01	2.137E 02	3.037E-03	3.612E-02
5.329E 01	3.217E 00	2.169E 02	3.209E-03	3.275E-02
5.404E 01	4.888E 00	2.218E 02	3.203E-03	3.107E-02
5.480E 01	4.904E 00	2.267E 02	3.209E-03	2.920E-02
5.576E 01	6.099E 00	2.328E 02	3.199E-03	2.724E-02
5.623E 01	1.896E 00	2.347E 02	3.170E-03	2.454E-02
5.628E 01	2.968E-01	2.350E 02	3.345E-03	2.098E-02
5.642E 01	7.905E-01	2.358E 02	3.243E-03	2.151E-02
5.650E 01	4.499E-01	2.363E 02	3.473E-03	2.182E-02
5.678E 01	1.556E 00	2.378E 02	3.336E-03	2.237E-02
5.701E 01	1.269E 00	2.391E 02	3.307E-03	2.145E-02
5.773E 01	4.346E 00	2.434E 02	3.206E-03	1.731E-02
5.875E 01	5.901E 00	2.493E 02	2.982E-03	2.208E-02
6.076E 01	1.059E 01	2.599E 02	3.239E-03	2.425E-02
6.218E 01	7.376E 00	2.673E 02	3.400E-03	2.432E-02
6.465E 01	1.246E 01	2.798E 02	3.456E-03	2.301E-02
6.502E 01	1.755E 00	2.815E 02	3.509E-03	2.188E-02
6.506E 01	1.787E-01	2.817E 02	3.579E-03	2.223E-02
6.526E 01	9.114E-01	2.826E 02	3.570E-03	2.210E-02
6.692E 01	7.894E 00	2.905E 02	3.406E-03	1.531E-02
6.759E 01	2.969E 00	2.935E 02	3.379E-03	1.390E-02
6.836E 01	3.145E 00	2.966E 02	3.323E-03	1.101E-02
6.908E 01	2.550E 00	2.992E 02	3.278E-03	9.075E-03
6.969E 01	1.888E 00	3.011E 02	3.240E-03	7.608E-03
7.064E 01	2.415E 00	3.035E 02	3.171E-03	5.380E-03
7.107E 01	9.370E-01	3.044E 02	3.160E-03	5.124E-03
7.260E 01	3.566E 00	3.080E 02	3.198E-03	6.421E-03
7.275E 01	3.610E-01	3.083E 02	3.194E-03	6.329E-03
7.350E 01	1.588E 00	3.099E 02	3.139E-03	4.807E-03
7.351E 01	2.719E-03	3.099E 02	3.138E-03	4.799E-03
7.483E 01	8.907E-01	3.108E 02	3.142E-03	5.091E-03
7.768E 01	1.798E 00	3.126E 02	3.147E-03	5.648E-03
8.158E 01	1.783E 00	3.144E 02	3.072E-03	4.177E-03
8.439E 01	7.894E-01	3.152E 02	3.043E-03	3.832E-03
8.725E 01	3.481E-01	3.155E 02	3.072E-03	4.811E-03
8.726E 01	0.000	3.155E 02	3.072E-03	4.813E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1014.	(LBF)
MEASURED THRUST	958.	(LBF)
CALCULATED SPECIFIC IMPULSE	1939.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1833.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5223	
MEASURED THRUST COEFFICIENT	0.4936	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4604.	(LBF)
NET THRUST	1115.	(LBF)
SPECIFIC IMPULSE	2133.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5744	

MOMENTUM AND FORCES

INLET FRICTION DRAG	95.9	(LBF)
INLET MOMENTUM CHANGE	-716.4	(LBF)
COMBUSTOR FRICTION DRAG	185.6	(LBF)
COMBUSTOR STRUT DRAG	10.38	(LBF)
COMBUSTOR MOMENTUM CHANGE	849.	(LBF)
NOZZLE FRICTION DRAG	34.02	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	882.	(LBF)
NOZZLE PRESSURE INTEGRAL	916.	(LBF)
EXTERNAL FRICTION DRAG	37.81	(LBF)
EXTERNAL PRESSURE INTEGRAL	-955.	(LBF)
TOTAL EXTERNAL DRAG	-993.	(LBF)
TOTAL STRUT DRAG	10.38	(LBF)
CAVITY FORCE	-1353.	(LBF)
CALCULATED LOAD CELL FORCE	-1332.	(LBF)
MEASURED LOAD CELL FORCE	-1388.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-149.2, -120.2,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2849	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	87.261	(IN)
STRUT LEADING EDGE	56.425	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	65.025	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8655	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2535	
DELTA PT2	0.0914	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4030	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2580	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9009	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9150	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.8967	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8648	
ENTHALPY AT P0 - SUPERSONIC	25.33	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	46.28	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0275
EQUIVALENCE RATIO	0.856
COMBUSTOR EFFICIENCY	0.795
TOTAL PRESSURE RATIO	0.2335
COMBUSTOR EFFECTIVENESS	0.7734
INJECTOR DISCHARGE COEFFICIENTS	0.8850, 0.7822,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9530
NOZZLE COEFFICIENT - CT	0.8755
PROCESS EFFICIENCY	0.9061
KINETIC ENERGY EFFICIENCY	0.8952

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.270	
1C	44.300	
2A	48.745	D
2C	46.250	E
3A	54.035	
3B	56.220	
4	44.770	

Reading 95

t = 204.25 sec.

READING = 0095 BLOCK = 115 TIME = 204.249 MACH 5.2 PT = 300.250 TT = 2942.9

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	300.250	2943	652.8(778)	1.2949	28.919	2560											
0.000	0.384	513	-5.8(123)	1.3989	28.919	1110	5.170	5741	1.884	0.08040	17.824	0.8655	3265	7.173	183.2		
SPIKE TIP NS		2	0 7														
0.600	14.287	2943	652.8(778)	1.2948	28.919	2559											
0.600	13.061	2883	634.8(761)	1.2967	28.919	2535	0.374	948	2.094	0.08040	17.824	0.8655	3421	1.185	191.9		
WIND TUNNEL		3	0 0														
0.000	300.250	2943	652.8(778)	1.2949	28.919	2560											
0.000	0.417	525	-2.8(126)	1.3987	28.919	1124	5.098	5728	1.884	0.08516	18.878	0.8655	3453	7.580	182.9		
SPIKE TIP NS		4	0 0														
0.600	14.287	2943	652.8(778)	1.2948	28.919	2559											
0.600	12.891	2875	632.2(758)	1.2970	28.919	2532	0.401	1015	2.094	0.08516	18.878	0.8655	3453	1.343	182.9		
INLET THROAT		5	0 4														
40.400	121.078	2828	618.3(745)	1.2985	28.919	2513											
40.400	13.564	1665	286.7(416)	1.3397	28.919	1958	2.080	4074	1.935	0.62108	18.878	0.1128	2780	41.643	147.2		
INLET UPNRSK		6	0 3														
40.400	121.078	2828	618.3(745)	1.2985	28.919	2513											
40.400	12.703	1637	279.2(408)	1.3411	28.919	1943	2.120	4119	1.935	0.59799	18.878	0.1233	2818	38.280	149.3		
INLET UNNRSK		7	0 4														
40.400	77.721	2828	618.3(745)	1.2985	28.919	2513											
40.400	64.243	2706	582.1(709)	1.3024	28.919	2462	0.547	1346	1.965	0.59799	18.878	0.1233	2818	12.510	149.3		
COMBUSTOR	0	8	1 4														
40.410	121.182	2828	618.3(745)	1.2985	28.919	2513											
40.410	14.990	1707	298.1(427)	1.3377	28.919	1981	2.020	4002	1.935	0.65771	18.878	0.1121	2779	40.910	147.2		
COMBUSTOR	0	9	2 4														
41.280	102.029	2813	613.7(740)	1.2990	28.919	2506											
41.280	17.295	1837	333.6(463)	1.3323	28.919	2051	1.825	3743	1.945	0.65965	18.878	0.1117	2691	38.375	142.6		
COMBUSTOR	0	10	3 4														
41.345	100.795	2812	613.3(740)	1.2990	28.919	2506											
41.345	17.498	1847	336.4(465)	1.3319	28.919	2056	1.810	3722	1.946	0.66002	18.878	0.1117	2685	38.180	142.2		
COMBUSTOR	0	11	4 4														
41.500	97.939	2808	612.4(739)	1.2991	28.919	2505											
41.500	18.003	1871	343.1(472)	1.3310	28.919	2069	1.774	3671	1.947	0.66099	18.878	0.1115	2668	37.707	141.3		
COMBUSTOR	0	12	5 5														
42.460	87.469	2788	606.3(733)	1.2998	28.919	2496											
42.460	19.645	1951	365.2(494)	1.3280	28.919	2110	1.646	3473	1.953	0.65449	18.878	0.1126	2605	35.326	138.0		
COMBUSTOR	0	13	6 4														
44.065	80.115	2752	595.5(722)	1.3009	28.919	2481											
44.065	19.915	1973	371.3(500)	1.3272	28.919	2122	1.579	3350	1.955	0.63288	18.878	0.1165	2560	32.946	135.6		
COMBUSTOR	0	14	7 4														
44.310	79.144	2746	593.9(721)	1.3011	28.919	2479											
44.310	20.058	1978	372.7(502)	1.3270	28.919	2124	1.566	3327	1.955	0.63135	18.878	0.1167	2552	32.640	135.2		
COMBUSTOR	0	15	8 4														
44.780	77.130	2737	591.1(718)	1.3014	28.919	2475											
44.780	20.456	1993	376.9(506)	1.3264	28.919	2132	1.536	3274	1.956	0.62890	18.878	0.1172	2535	31.997	134.3		
COMBUSTOR	0	16	9 4														
44.800	77.023	2737	591.0(718)	1.3014	28.919	2474											
44.800	20.464	1993	377.1(506)	1.3264	28.919	2132	1.535	3272	1.956	0.62857	18.878	0.1173	2534	31.960	134.2		
COMBUSTOR	0	17	10 21														
46.250	54.552	2657	600.3(786)	1.3075	25.430	2606											
46.250	15.714	1966	376.9(564)	1.3314	25.430	2262	1.478	3344	2.191	0.59880	19.083	0.1244	2484	31.115	130.2	0.34	0.07
COMBUSTOR	0	18	11 21														
46.260	57.835	2548	600.3(752)	1.3125	25.321	2562											
46.260	15.702	1851	376.8(530)	1.3370	25.321	2204	1.517	3344	2.175	0.59850	19.083	0.1245	2484	31.101	130.2	0.34	0.01

READING = 0095 BLOCK = 115 TIME = 204.249 MACH 5.2 PT = 300.250 TT = 2942.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
47.305	56.080	2519	596.1(743)	1.3137	25.305	2550											
47.305	14.491	1805	368.0(516)	1.3390	25.305	2179	1.550	3378	2.174	0.55600	19.083	0.1340	2501	29.185	131.0	0.34	0.00
COMBUSTOR	0	20	13 21														
47.310	56.151	2516	596.0(742)	1.3138	25.303	2549											
47.310	14.488	1803	368.0(515)	1.3391	25.303	2178	1.551	3378	2.173	0.55700	19.083	0.1338	2500	29.237	131.0	0.34	0.00
COMBUSTOR	0	21	14 21														
48.110	56.643	2506	592.8(739)	1.3141	25.303	2544											
48.110	17.026	1866	387.7(535)	1.3367	25.302	2214	1.447	3204	2.171	0.51914	19.083	0.1435	2526	25.847	132.4	0.34	0.00
COMBUSTOR	0	22	15 21														
48.745	45.869	2470	607.2(814)	1.3182	22.511	2682											
48.745	16.407	1916	409.0(617)	1.3379	22.511	2380	1.323	3149	2.395	0.48548	19.298	0.1552	2541	23.756	131.7	0.70	0.04
COMBUSTOR	0	23	16 21														
48.755	48.144	2367	607.1(778)	1.3229	22.423	2635											
48.765	16.421	1809	409.1(581)	1.3433	22.423	2321	1.356	3148	2.378	0.48484	19.298	0.1554	2542	23.717	131.7	0.70	0.01
COMBUSTOR	0	24	17 21														
49.285	48.602	2345	605.0(771)	1.3238	22.410	2625											
49.285	17.187	1808	414.5(581)	1.3434	22.410	2322	1.330	3088	2.374	0.45345	19.298	0.1662	2584	21.758	133.9	0.70	0.00
COMBUSTOR	0	25	18 4														
50.695	43.645	2604	599.2(860)	1.3118	22.647	2739											
50.695	19.631	2146	433.1(695)	1.3276	22.647	2501	1.153	2883	2.414	0.38646	19.298	0.1950	2709	17.313	140.4	0.70	0.09
COMBUSTOR	0	26	19 5														
52.795	38.269	2981	585.8(998)	1.2937	22.892	2894											
52.795	17.850	2498	404.8(819)	1.3103	22.893	2666	1.129	3009	2.472	0.31861	19.412	0.2379	2903	14.900	149.6	0.71	0.22
COMBUSTOR	0	27	20 4														
53.295	37.453	3055	583.2(1024)	1.2901	22.967	2921											
53.295	16.700	2537	388.3(832)	1.3079	22.968	2680	1.165	3123	2.480	0.30560	19.412	0.2488	2945	14.832	151.7	0.71	0.24
COMBUSTOR	0	28	21 4														
54.045	35.907	3209	579.3(1079)	1.2822	23.123	2975											
54.045	16.601	2697	383.9(888)	1.3003	23.125	2746	1.139	3127	2.495	0.28806	19.412	0.2631	3005	13.998	154.8	0.71	0.30
COMBUSTOR	0	29	22 4														
54.805	34.557	3365	575.3(1134)	1.2739	23.283	3025											
54.805	16.500	2858	379.3(945)	1.2924	23.287	2808	1.115	3132	2.509	0.27241	19.412	0.2782	3065	13.257	157.9	0.71	0.35
COMBUSTOR	0	30	23 4														
55.760	33.360	3509	570.1(1186)	1.2657	23.440	3069											
55.760	15.101	2957	353.2(978)	1.2867	23.447	2840	1.160	3294	2.521	0.25527	19.412	0.2969	3136	13.067	161.5	0.71	0.40
COMBUSTOR	0	31	24 5														
56.230	28.629	4108	567.6(1404)	1.2246	24.075	3223											
56.230	14.413	3608	349.3(1211)	1.2496	24.117	3049	1.084	3305	2.564	0.20602	19.412	0.3679	3352	10.580	172.7	0.71	0.62
COMBUSTOR	0	32	25 4														
56.285	28.930	4049	567.3(1383)	1.2292	24.012	3210											
56.285	12.916	3463	317.0(1157)	1.2575	24.050	3000	1.179	3539	2.561	0.20540	19.412	0.3698	3356	11.296	172.9	0.71	0.60
COMBUSTOR	0	33	26 3														
56.425	28.826	4068	566.6(1390)	1.2277	24.034	3214											
56.425	12.814	3479	314.0(1163)	1.2564	24.075	3005	1.183	3555	2.562	0.20396	19.412	0.3716	3364	11.268	173.3	0.71	0.61
COMBUSTOR	0	34	27 4														
56.505	28.914	4136	566.2(1414)	1.2225	24.110	3229											
56.505	14.010	3609	335.2(1210)	1.2490	24.155	3046	1.116	3399	2.565	0.20628	19.412	0.3674	3369	10.897	173.6	0.71	0.64
COMBUSTOR	0	35	28 3														
56.785	29.058	4157	564.8(1422)	1.2209	24.136	3233											
56.785	13.600	3605	322.6(1208)	1.2487	24.186	3042	1.144	3481	2.565	0.20553	19.412	0.3688	3385	11.119	174.4	0.71	0.64
COMBUSTOR	0	36	29 3														
57.011	29.103	4191	563.7(1434)	1.2182	24.176	3240											
57.011	13.707	3645	321.6(1223)	1.2460	24.230	3053	1.140	3480	2.566	0.20521	19.412	0.3693	3396	11.098	175.0	0.71	0.66
COMBUSTOR	0	37	30 4														
57.735	28.839	4295	560.2(1472)	1.2095	24.302	3260											
57.735	14.050	3778	323.2(1271)	1.2366	24.370	3087	1.115	3443	2.570	0.20196	19.412	0.3753	3428	10.806	176.6	0.71	0.71

READING = 0095 BLOCK = 115 TIME = 204.249 MACH 5.2 PT = 300.250 TT = 2942.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58.755	28.721	4412	555.4(1515)	1.1995	24.448	3281											
58.755	16.350	4014	362.8(1359)	1.2204	24.525	3151	0.985	3104	2.574	0.20067	19.412	0.3777	3455	9.682	178.0	0.71	0.76
COMBUSTOR	0	39	32 4														
60.765	29.712	4353	546.4(1493)	1.2046	24.405	3268											
60.765	18.262	4005	381.0(1357)	1.2228	24.465	3155	0.912	2877	2.567	0.20766	19.412	0.3658	3443	9.283	177.4	0.71	0.74
COMBUSTOR	0	40	33 3														
62.185	30.382	4335	540.2(1486)	1.2063	24.401	3264											
62.185	18.431	3977	371.3(1346)	1.2249	24.459	3147	0.924	2907	2.564	0.21328	19.412	0.3553	3432	9.636	176.8	0.71	0.74
COMBUSTOR	0	41	34 3														
64.649	28.568	4303	528.7(1474)	1.2077	24.397	3254											
64.649	15.236	3853	320.2(1298)	1.2314	24.462	3105	1.040	3230	2.566	0.20217	19.412	0.3749	3412	10.148	175.8	0.71	0.73
COMBUSTOR	0	42	35 2														
65.025	26.519	4299	526.9(1472)	1.2071	24.398	3252											
65.025	14.562	3872	327.7(1305)	1.2298	24.462	3111	1.015	3157	2.572	0.18795	19.412	0.4032	3409	9.221	175.6	0.71	0.74
COMBUSTOR	REGEN	43	36 21														
65.025	26.519	4484	626.5(1545)	1.1944	24.338	3308											
65.025	18.571	4236	499.8(1447)	1.2071	24.400	3228	0.780	2518	2.594	0.18795	19.412	0.4032	3437	7.354	177.1	0.71	0.74
NOZZLE AE		44	37 4														
87.261	26.519	4299	526.9(1445)	1.2071	24.398	3252											
87.261	0.758	2058	-368.6(638)	1.3069	24.505	2336	2.866	6694	2.572	0.03912	19.412	1.9371	4415	4.070	227.4	0.71	0.74
NOZZLE PO		45	38 4														
87.261	26.519	4299	526.9(1445)	1.2071	24.398	3252											
87.261	0.417	1784	-461.6(545)	1.3189	24.505	2185	3.218	7033	2.572	0.02607	19.412	2.9074	4554	2.849	234.6	0.71	0.74
NOZZLE AE REGEN		46	39 4														
87.261	26.519	4484	626.5(1545)	1.1944	24.338	3308											
87.261	0.802	2225	-310.4(696)	1.3002	24.505	2423	2.826	6847	2.594	0.03912	19.412	1.9372	4529	4.163	233.3	0.71	0.74
NOZZLE PO REGEN		47	40 4														
87.261	26.519	4484	626.5(1545)	1.1944	24.338	3308											
87.261	0.417	1908	-419.7(587)	1.3132	24.505	2255	3.209	7235	2.594	0.02508	19.412	3.0223	4688	2.820	241.5	0.71	0.74
FICTIVE COMBUSTR		67	60 0														
65.025	121.078	4932	526.9(1706)	1.1796	25.130	3393											
65.025	0.417	1574	-842.8(465)	1.3207	25.419	2017	4.105	8279	2.462	0.03608	19.412	2.1006	5219	4.642	268.9	0.71	1.00
FICTIVE NOZZLE		68	61 0														
87.261	19.927	4243	502.3(1450)	1.2075	24.401	3231											
87.261	0.864	2231	-308.3(698)	1.3000	24.505	2426	2.626	6369	2.589	0.03913	19.412	1.9371	4271	3.872	220.0	0.71	0.74

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.981E-01	1.060E 00	0.000	-3.503E-01	0.000	0.000	0.000	2.470E-02	2.541E 00	3.530E-03	0.000	0.000
1.834E 01	1.060E 00	0.000	-3.520E 01	0.000	0.000	0.000	1.634E 02	2.541E 00	3.530E-03	0.000	0.000
3.070E 01	1.860E 00	0.000	-1.536E 02	0.000	0.000	0.000	5.053E 02	4.459E 00	6.195E-03	0.000	0.000
3.508E 01	3.063E 00	0.000	-3.131E 02	0.000	0.000	0.000	6.804E 02	7.344E 00	1.020E-02	0.000	0.000
3.516E 01	3.080E 00	4.354E 00	-3.607E 02	0.000	0.000	0.000	6.841E 02	7.385E 00	1.026E-02	1.044E 01	1.450E-02
3.517E 01	3.081E 00	4.339E 00	-3.608E 02	0.000	0.000	0.000	6.843E 02	7.388E 00	1.026E-02	1.040E 01	1.445E-02
3.555E 01	3.160E 00	3.387E 00	-3.668E 02	0.000	0.000	0.000	7.225E 02	7.576E 00	1.052E-02	8.120E 00	1.128E-02
3.583E 01	3.143E 00	2.675E 00	-3.751E 02	-3.362E 02	-3.362E 02	0.000	7.515E 02	7.536E 00	1.047E-02	6.413E 00	8.909E-03
3.606E 01	3.130E 00	3.662E 00	-3.818E 02	-3.405E 02	-3.405E 02	0.000	7.745E 02	7.504E 00	1.042E-02	8.779E 00	1.220E-02
3.648E 01	3.528E 00	5.503E 00	-3.910E 02	-3.489E 02	-3.489E 02	0.000	8.183E 02	8.459E 00	1.175E-02	1.319E 01	1.833E-02
3.701E 01	3.337E 00	7.826E 00	-4.022E 02	-4.008E 02	-3.599E 02	-4.086E 01	8.743E 02	8.002E 00	1.112E-02	1.876E 01	2.606E-02
3.729E 01	4.276E 00	9.075E 00	-4.083E 02	-4.192E 02	-3.661E 02	-5.310E 01	9.048E 02	1.025E 01	1.424E-02	2.176E 01	3.022E-02
3.803E 01	6.697E 00	1.084E 01	-4.487E 02	-4.670E 02	-3.829E 02	-8.415E 01	9.851E 02	1.606E 01	2.231E-02	2.599E 01	3.611E-02
3.831E 01	8.719E 00	1.152E 01	-4.681E 02	-4.861E 02	-3.900E 02	-9.613E 01	1.017E 03	2.090E 01	2.904E-02	2.763E 01	3.838E-02
3.875E 01	1.181E 01	1.183E 01	-5.035E 02	-5.168E 02	-4.024E 02	-1.144E 02	1.066E 03	2.830E 01	3.932E-02	2.835E 01	3.939E-02
3.878E 01	1.205E 01	1.185E 01	-5.063E 02	-5.193E 02	-4.035E 02	-1.158E 02	1.070E 03	2.890E 01	4.014E-02	2.841E 01	3.947E-02
3.901E 01	1.365E 01	1.266E 01	-5.223E 02	-5.359E 02	-4.107E 02	-1.252E 02	1.096E 03	3.273E 01	4.546E-02	3.035E 01	4.217E-02
3.929E 01	1.339E 01	1.369E 01	-5.384E 02	-5.578E 02	-4.207E 02	-1.371E 02	1.129E 03	3.210E 01	4.459E-02	3.282E 01	4.559E-02
3.950E 01	1.320E 01	9.696E 00	-5.476E 02	-5.740E 02	-4.285E 02	-1.456E 02	1.152E 03	3.165E 01	4.396E-02	2.325E 01	3.229E-02
3.978E 01	1.413E 01	4.150E 00	-5.650E 02	-5.973E 02	-4.402E 02	-1.572E 02	1.185E 03	3.388E 01	4.706E-02	9.950E 00	1.382E-02
4.000E 01	1.483E 01	4.200E 00	-5.819E 02	-6.155E 02	-4.497E 02	-1.658E 02	1.211E 03	3.556E 01	4.940E-02	1.007E 01	1.399E-02
4.040E 01	1.702E 01	4.292E 00	-6.137E 02	-6.505E 02	-4.687E 02	-1.818E 02	1.257E 03	4.080E 01	5.667E-02	1.029E 01	1.430E-02
4.041E 01	1.707E 01	4.295E 00	-6.144E 02	-6.514E 02	-4.692E 02	-1.822E 02	1.259E 03	4.093E 01	5.686E-02	1.030E 01	1.430E-02
4.128E 01	2.182E 01	4.496E 00	-6.908E 02	-7.382E 02	-5.154E 02	-2.227E 02	1.362E 03	5.232E 01	7.268E-02	1.078E 01	1.497E-02
4.134E 01	2.218E 01	4.511E 00	-6.969E 02	-7.454E 02	-5.192E 02	-2.262E 02	1.369E 03	5.317E 01	7.386E-02	1.082E 01	1.502E-02
4.150E 01	2.302E 01	5.014E 00	-7.115E 02	-7.628E 02	-5.283E 02	-2.345E 02	1.388E 03	5.520E 01	7.669E-02	1.202E 01	1.670E-02
4.246E 01	1.429E 01	8.131E 00	-7.633E 02	-8.772E 02	-5.883E 02	-2.889E 02	1.503E 03	3.425E 01	4.759E-02	1.949E 01	2.708E-02
4.406E 01	1.905E 01	1.334E 01	-7.893E 02	-1.081E 03	-6.906E 02	-3.900E 02	1.697E 03	4.566E 01	6.343E-02	3.198E 01	4.443E-02
4.431E 01	1.977E 01	1.342E 01	-7.943E 02	-1.111E 03	-7.057E 02	-4.054E 02	1.727E 03	4.740E 01	6.585E-02	3.216E 01	4.468E-02
4.478E 01	2.117E 01	1.356E 01	-8.057E 02	-1.164E 03	-7.344E 02	-4.295E 02	1.784E 03	5.074E 01	7.049E-02	3.251E 01	4.516E-02
4.480E 01	2.122E 01	1.356E 01	-8.061E 02	-1.166E 03	-7.356E 02	-4.304E 02	1.786E 03	5.089E 01	7.069E-02	3.252E 01	4.518E-02
4.625E 01	1.742E 01	1.400E 01	-8.084E 02	-1.298E 03	-8.217E 02	-4.761E 02	1.965E 03	4.177E 01	5.803E-02	3.358E 01	4.664E-02
4.626E 01	1.740E 01	1.401E 01	-8.083E 02	-1.299E 03	-8.223E 02	-4.763E 02	1.966E 03	4.171E 01	5.794E-02	3.358E 01	4.665E-02
4.730E 01	1.466E 01	1.432E 01	-7.789E 02	-1.379E 03	-8.823E 02	-4.971E 02	2.095E 03	3.514E 01	4.882E-02	3.434E 01	4.771E-02
4.731E 01	1.464E 01	1.433E 01	-7.799E 02	-1.380E 03	-8.826E 02	-4.972E 02	2.096E 03	3.511E 01	4.877E-02	3.436E 01	4.773E-02
4.811E 01	1.856E 01	1.549E 01	-7.454E 02	-1.441E 03	-9.275E 02	-5.135E 02	2.196E 03	4.450E 01	6.182E-02	3.713E 01	5.159E-02
4.874E 01	1.641E 01	1.641E 01	-6.984E 02	-1.489E 03	-9.624E 02	-5.271E 02	2.275E 03	3.934E 01	5.464E-02	3.934E 01	5.464E-02
4.875E 01	1.642E 01	1.642E 01	-6.976E 02	-1.490E 03	-9.629E 02	-5.273E 02	2.276E 03	3.937E 01	5.469E-02	3.937E 01	5.469E-02
4.928E 01	1.719E 01	1.719E 01	-6.512E 02	-1.531E 03	-9.916E 02	-5.389E 02	2.343E 03	4.121E 01	5.724E-02	4.121E 01	5.724E-02
5.069E 01	1.963E 01	1.963E 01	-5.151E 02	-1.643E 03	-1.066E 03	-5.774E 02	2.521E 03	4.707E 01	6.538E-02	4.707E 01	6.538E-02
5.279E 01	1.785E 01	1.785E 01	-3.087E 02	-1.836E 03	-1.172E 03	-6.644E 02	2.787E 03	4.280E 01	5.945E-02	4.280E 01	5.945E-02
5.329E 01	1.670E 01	1.670E 01	-2.638E 02	-1.886E 03	-1.196E 03	-6.896E 02	2.851E 03	4.004E 01	5.562E-02	4.004E 01	5.562E-02
5.404E 01	1.660E 01	1.660E 01	-1.994E 02	-1.961E 03	-1.232E 03	-7.291E 02	2.946E 03	3.980E 01	5.529E-02	3.980E 01	5.529E-02
5.480E 01	1.650E 01	1.650E 01	-1.352E 02	-2.039E 03	-1.267E 03	-7.721E 02	3.044E 03	3.956E 01	5.495E-02	3.956E 01	5.495E-02
5.576E 01	1.510E 01	1.510E 01	-5.958E 01	-2.141E 03	-1.310E 03	-8.306E 02	3.167E 03	3.621E 01	5.030E-02	3.621E 01	5.030E-02
5.623E 01	1.441E 01	1.441E 01	1.582E 02	-2.189E 03	-1.328E 03	-8.611E 02	3.209E 03	3.456E 01	4.800E-02	3.456E 01	4.800E-02
5.628E 01	1.150E 01	1.433E 01	1.623E 02	-2.195E 03	-1.330E 03	-8.648E 02	3.217E 03	2.757E 01	3.830E-02	3.436E 01	4.773E-02
5.642E 01	1.150E 01	1.413E 01	1.715E 02	-2.209E 03	-1.335E 03	-8.740E 02	3.234E 03	2.757E 01	3.830E-02	3.387E 01	4.705E-02
5.650E 01	1.401E 01	1.401E 01	1.772E 02	-2.217E 03	-1.337E 03	-8.793E 02	3.245E 03	3.359E 01	4.666E-02	3.359E 01	4.666E-02
5.678E 01	1.360E 01	1.360E 01	1.952E 02	-2.244E 03	-1.346E 03	-8.975E 02	3.280E 03	3.261E 01	4.530E-02	3.261E 01	4.530E-02
5.701E 01	1.371E 01	1.371E 01	2.085E 02	-2.265E 03	-1.353E 03	-9.120E 02	3.309E 03	3.286E 01	4.565E-02	3.286E 01	4.565E-02
5.773E 01	1.405E 01	1.405E 01	2.461E 02	-2.333E 03	-1.376E 03	-9.574E 02	3.402E 03	3.369E 01	4.679E-02	3.369E 01	4.679E-02
5.875E 01	1.635E 01	1.635E 01	2.813E 02	-2.425E 03	-1.406E 03	-1.019E 03	3.532E 03	3.920E 01	5.445E-02	3.920E 01	5.445E-02
6.076E 01	1.826E 01	1.826E 01	2.854E 02	-2.600E 03	-1.462E 03	-1.139E 03	3.790E 03	4.378E 01	6.082E-02	4.378E 01	6.082E-02
6.218E 01	1.843E 01	1.843E 01	2.854E 02	-2.721E 03	-1.504E 03	-1.216E 03	3.972E 03	4.419E 01	6.139E-02	4.419E 01	6.139E-02
6.465E 01	1.524E 01	1.524E 01	2.854E 02	-2.943E 03	-1.596E 03	-1.347E 03	4.289E 03	3.653E 01	5.075E-02	3.653E 01	5.075E-02

READING = 0095 BLOCK = 115 TIME = 204.249 MACH 5.2 PT = 300.250 TT = 2942.9

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OR	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.502E 01	1.437E 01	1.475E 01	2.854E 02	-2.979E 03	-1.612E 03	-1.367E 03	4.337E 03	3.446E 01	4.788E-02	3.536E 01	4.912E-02
6.506E 01	1.437E 01	1.470E 01	2.854E 02	-2.983E 03	-1.614E 03	-1.369E 03	4.342E 03	3.446E 01	4.788E-02	3.524E 01	4.895E-02
6.526E 01	1.350E 01	1.444E 01	2.854E 02	-3.002E 03	-1.623E 03	-1.379E 03	4.368E 03	3.236E 01	4.495E-02	3.461E 01	4.808E-02
6.692E 01	6.200E 00	6.178E 00	3.981E 02	-3.124E 03	-1.679E 03	-1.445E 03	4.583E 03	1.486E 01	2.065E-02	1.480E 01	2.057E-02
6.759E 01	4.679E 00	5.677E 00	5.130E 02	-3.160E 03	-1.696E 03	-1.465E 03	4.665E 03	1.122E 01	1.558E-02	1.361E 01	1.891E-02
6.836E 01	2.930E 00	4.472E 00	6.341E 02	-3.199E 03	-1.711E 03	-1.488E 03	4.760E 03	7.025E 00	9.759E-03	1.072E 01	1.489E-02
6.908E 01	2.473E 00	3.345E 00	7.184E 02	-3.235E 03	-1.722E 03	-1.512E 03	4.848E 03	5.928E 00	8.235E-03	8.020E 00	1.114E-02
6.969E 01	2.085E 00	2.565E 00	7.748E 02	-3.265E 03	-1.731E 03	-1.533E 03	4.922E 03	4.999E 00	6.944E-03	6.149E 00	8.542E-03
7.064E 01	1.586E 00	1.350E 00	8.356E 02	-3.305E 03	-1.745E 03	-1.561E 03	5.036E 03	3.802E 00	5.282E-03	3.237E 00	4.496E-03
7.107E 01	1.360E 00	1.386E 00	8.560E 02	-3.322E 03	-1.750E 03	-1.571E 03	5.088E 03	3.261E 00	4.530E-03	3.323E 00	4.617E-03
7.260E 01	2.248E 00	1.515E 00	9.356E 02	-3.370E 03	-1.768E 03	-1.602E 03	5.273E 03	5.390E 00	7.487E-03	3.632E 00	5.046E-03
7.275E 01	2.335E 00	1.354E 00	9.441E 02	-3.374E 03	-1.769E 03	-1.604E 03	5.290E 03	5.598E 00	7.777E-03	3.247E 00	4.510E-03
7.350E 01	1.964E 00	5.500E-01	9.916E 02	-3.396E 03	-1.776E 03	-1.620E 03	5.374E 03	4.708E 00	6.540E-03	1.319E 00	1.832E-03
7.351E 01	1.962E 00	5.457E-01	9.928E 02	-3.396E 03	-1.776E 03	-1.620E 03	5.375E 03	4.703E 00	6.533E-03	1.308E 00	1.817E-03
7.483E 01	1.305E 00	0.000	1.027E 03	-3.439E 03	-1.787E 03	-1.652E 03	5.427E 03	3.129E 00	4.346E-03	0.000	0.000
7.768E 01	1.410E 00	0.000	1.082E 03	-3.407E 03	-1.804E 03	-1.602E 03	5.525E 03	3.380E 00	4.696E-03	0.000	0.000
8.158E 01	9.950E-01	0.000	1.133E 03	-3.422E 03	-1.820E 03	-1.602E 03	5.630E 03	2.386E 00	3.314E-03	0.000	0.000
8.439E 01	9.200E-01	0.000	1.154E 03	-3.435E 03	-1.833E 03	-1.602E 03	5.684E 03	2.206E 00	3.064E-03	0.000	0.000
8.725E 01	1.240E 00	0.000	1.180E 03	-3.457E 03	-1.855E 03	-1.602E 03	5.707E 03	2.973E 00	4.130E-03	0.000	0.000
8.726E 01	1.241E 00	0.000	1.180E 03	-3.457E 03	-1.855E 03	-1.602E 03	5.707E 03	2.975E 00	4.132E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.561E 01	9.561E 01	2.601E-03	3.473E-02
4.041E 01	1.271E-01	9.574E 01	2.614E-03	3.709E-02
4.128E 01	1.090E 01	1.066E 02	2.731E-03	3.932E-02
4.134E 01	8.099E-01	1.074E 02	2.740E-03	3.950E-02
4.150E 01	1.928E 00	1.094E 02	2.761E-03	3.995E-02
4.246E 01	1.174E 01	1.211E 02	2.833E-03	4.085E-02
4.406E 01	1.890E 01	1.400E 02	2.867E-03	4.005E-02
4.431E 01	2.804E 00	1.428E 02	2.878E-03	4.010E-02
4.478E 01	5.354E 00	1.482E 02	2.900E-03	4.028E-02
4.480E 01	2.284E-01	1.484E 02	2.901E-03	4.028E-02
4.625E 01	1.791E 01	1.663E 02	3.473E-03	3.023E-02
4.626E 01	1.353E-01	1.664E 02	3.473E-03	3.023E-02
4.730E 01	1.257E 01	1.790E 02	2.969E-03	3.345E-02
4.731E 01	6.214E-02	1.791E 02	2.969E-03	3.345E-02
4.811E 01	8.123E 00	1.872E 02	2.948E-03	3.621E-02
4.874E 01	6.292E 00	1.935E 02	3.438E-03	3.085E-02
4.875E 01	9.656E-02	1.936E 02	3.057E-03	3.541E-02
4.928E 01	4.550E 00	1.981E 02	2.963E-03	3.667E-02
5.069E 01	1.019E 01	2.083E 02	2.912E-03	3.768E-02
5.279E 01	1.262E 01	2.209E 02	2.972E-03	3.292E-02
5.329E 01	2.887E 00	2.238E 02	3.123E-03	2.977E-02
5.404E 01	4.319E 00	2.282E 02	3.131E-03	2.900E-02
5.480E 01	4.184E 00	2.323E 02	3.175E-03	2.788E-02
5.576E 01	5.141E 00	2.375E 02	3.188E-03	2.616E-02
5.623E 01	1.612E 00	2.391E 02	3.162E-03	2.375E-02
5.628E 01	2.514E-01	2.393E 02	3.363E-03	2.109E-02
5.642E 01	6.714E-01	2.400E 02	3.335E-03	2.119E-02
5.650E 01	3.848E-01	2.404E 02	3.450E-03	2.111E-02
5.678E 01	1.336E 00	2.417E 02	3.357E-03	2.156E-02
5.701E 01	1.075E 00	2.428E 02	3.357E-03	2.160E-02
5.773E 01	3.405E 00	2.462E 02	3.356E-03	2.168E-02
5.875E 01	4.538E 00	2.507E 02	3.422E-03	2.210E-02
6.076E 01	8.434E 00	2.592E 02	3.476E-03	2.237E-02
6.218E 01	5.963E 00	2.651E 02	3.444E-03	2.292E-02
6.465E 01	1.073E 01	2.759E 02	3.419E-03	2.150E-02
6.502E 01	1.608E 00	2.775E 02	3.463E-03	2.031E-02
6.506E 01	1.654E-01	2.776E 02	3.519E-03	2.065E-02
6.526E 01	8.443E-01	2.785E 02	3.507E-03	2.051E-02
6.692E 01	7.341E 00	2.858E 02	3.323E-03	1.434E-02
6.759E 01	2.758E 00	2.886E 02	3.291E-03	1.288E-02
6.836E 01	2.928E 00	2.915E 02	3.233E-03	1.038E-02
6.908E 01	2.411E 00	2.939E 02	3.190E-03	8.810E-03
6.969E 01	1.819E 00	2.957E 02	3.154E-03	7.533E-03
7.064E 01	2.359E 00	2.981E 02	3.083E-03	5.402E-03
7.107E 01	9.225E-01	2.990E 02	3.071E-03	5.140E-03
7.260E 01	3.508E 00	3.028E 02	3.113E-03	6.451E-03
7.275E 01	3.550E-01	3.029E 02	3.109E-03	6.358E-03
7.350E 01	1.560E 00	3.045E 02	3.048E-03	4.794E-03
7.351E 01	2.664E-03	3.045E 02	3.048E-03	4.785E-03
7.483E 01	8.617E-01	3.053E 02	3.046E-03	4.917E-03
7.768E 01	1.682E 00	3.070E 02	3.043E-03	5.179E-03
8.158E 01	1.656E 00	3.087E 02	2.972E-03	3.965E-03
8.439E 01	7.505E-01	3.094E 02	2.946E-03	3.719E-03
8.725E 01	3.328E-01	3.097E 02	2.977E-03	4.631E-03
8.726E 01	0.000	3.097E 02	2.977E-03	4.633E-03

READING = 0095 BLOCK = 115 TIME = 204.249 MACH 5.2 PT = 300.250 TT = 2942.9

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	782.	(LBF)
MEASURED THRUST	721.	(LBF)
CALCULATED SPECIFIC IMPULSE	1801.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1660.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4031	
MEASURED THRUST COEFFICIENT	0.3715	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	4382.	(LBF)
NET THRUST	893.	(LBF)
SPECIFIC IMPULSE	2054.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.4598	

MOMENTUM AND FORCES

INLET FRICTION DRAG	95.6	(LBF)
INLET MOMENTUM CHANGE	-709.3	(LBF)
COMBUSTOR FRICTION DRAG	181.9	(LBF)
COMBUSTOR STRUT DRAG	31.97	(LBF)
COMBUSTOR MOMENTUM CHANGE	629.	(LBF)
NOZZLE FRICTION DRAG	32.26	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	863.	(LBF)
NOZZLE PRESSURE INTEGRAL	895.	(LBF)
EXTERNAL FRICTION DRAG	39.24	(LBF)
EXTERNAL PRESSURE INTEGRAL	-951.	(LBF)
TOTAL EXTERNAL DRAG	-990.	(LBF)
TOTAL STRUT DRAG	31.97	(LBF)
CAVITY FORCE	-1354.	(LBF)
CALCULATED LOAD CELL FORCE	-1561.	(LBF)
MEASURED LOAD CELL FORCE	-1623.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-148.2, -119.4,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2849	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	87.261	(IN)
STRUT LEADING EDGE	56.425	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	65.025	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8655	
ADDITIVE DRAG COEFFICIENT	0.8110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2544	
DELTA PT2	0.8917	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4033	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2589	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8982	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9137	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9025	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8705	
ENTHALPY AT P0 - SUPERSONIC	26.65	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	47.64	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0229
EQUIVALENCE RATIO	0.712
COMBUSTOR EFFICIENCY	0.736
TOTAL PRESSURE RATIO	0.2190
COMBUSTOR EFFECTIVENESS	0.7256
INJECTOR DISCHARGE COEFFICIENTS	0.9478, 0.7924,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9675
NOZZLE COEFFICIENT - CT	0.8925
PROCESS EFFICIENCY	0.9435
KINETIC ENERGY EFFICIENCY	0.9282

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.270	
1C	44.300	
2A	48.745	D
2C	46.250	E
3A	54.035	
3B	56.220	
4	44.770	

Reading 95

t = 211.45 sec.

2/28/75

READING = 0095 BLOCK = 123 TIME = 211.449 MACH 5.2 PT = 300.250 TT = 2937.1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	300.250	2937	651.0(777)	1.2951	28.919	2557											
0.000	0.384	511	-6.1(123)	1.3989	28.919	1109	5.171	5734	1.884	0.08053	17.852	0.8655	3267	7.176	183.0		
SPIKE TIP NS		2	0 7														
0.600	14.312	2937	651.0(777)	1.2950	28.919	2557											
0.600	13.087	2878	633.1(759)	1.2969	28.919	2533	0.374	946	2.093	0.08053	17.852	0.8655	3426	1.184	191.9		
WIND TUNNEL		3	0 0														
0.000	300.250	2937	651.0(777)	1.2951	28.919	2557											
0.000	0.418	524	-3.1(126)	1.3987	28.919	1123	5.096	5721	1.884	0.08541	18.933	0.8655	3459	7.593	182.7		
SPIKE TIP NS		4	0 0														
0.600	14.312	2937	651.0(777)	1.2950	28.919	2557											
0.600	12.913	2869	630.5(757)	1.2972	28.919	2529	0.401	1014	2.093	0.08541	18.933	0.8655	3459	1.346	182.7		
INLET THROAT		5	0 4														
40.400	120.377	2835	620.5(747)	1.2983	28.919	2516											
40.400	13.695	1676	289.7(419)	1.3392	28.919	1965	2.071	4068	1.936	0.62202	18.933	0.1120	2787	41.710	147.2		
INLET UPNRSK		6	0 3														
40.400	120.377	2835	620.5(747)	1.2983	28.919	2516											
40.400	12.854	1650	282.5(411)	1.3405	28.919	1950	2.109	4113	1.936	0.59974	18.933	0.1233	2826	38.331	149.3		
INLET DNNRSK		7	0 4														
40.400	77.899	2835	620.5(747)	1.2983	28.919	2516											
40.400	64.321	2713	584.0(711)	1.3022	28.919	2464	0.548	1352	1.966	0.59974	18.933	0.1233	2826	12.598	149.3		
COMBUSTOR	0	8	1 4														
40.410	120.501	2835	620.4(747)	1.2983	28.919	2516											
40.410	15.174	1720	301.5(431)	1.3372	28.919	1988	2.009	3995	1.936	0.65964	18.933	0.1121	2786	40.950	147.2		
COMBUSTOR	0	9	2 4														
41.280	101.476	2821	616.3(743)	1.2987	28.919	2510											
41.280	17.536	1852	337.7(467)	1.3317	28.919	2059	1.813	3733	1.946	0.66158	18.933	0.1117	2699	38.381	142.5		
COMBUSTOR	0	10	3 4														
41.345	100.253	2820	615.9(742)	1.2988	28.919	2509											
41.345	17.744	1862	340.6(470)	1.3313	28.919	2064	1.798	3712	1.947	0.66195	18.933	0.1117	2692	38.183	142.2		
COMBUSTOR	0	11	4 4														
41.500	97.419	2817	615.1(742)	1.2989	28.919	2508											
41.500	18.263	1887	347.4(476)	1.3304	28.919	2077	1.762	3660	1.949	0.66292	18.933	0.1115	2675	37.701	141.3		
COMBUSTOR	0	12	5 5														
42.460	86.945	2799	609.5(736)	1.2994	28.919	2501											
42.460	19.990	1970	370.6(500)	1.3272	28.919	2120	1.631	3457	1.955	0.65641	18.933	0.1126	2611	35.268	137.9		
COMBUSTOR	0	13	6 4														
44.065	79.512	2766	599.7(727)	1.3005	28.919	2487											
44.065	20.359	1998	378.3(507)	1.3262	28.919	2134	1.560	3328	1.957	0.63473	18.933	0.1165	2566	32.830	135.5		
COMBUSTOR	0	14	7 4														
44.310	78.546	2761	598.2(725)	1.3007	28.919	2485											
44.310	20.517	2004	380.0(509)	1.3260	28.919	2137	1.546	3304	1.957	0.63319	18.933	0.1167	2558	32.516	135.1		
COMBUSTOR	0	15	8 4														
44.780	76.546	2752	595.7(723)	1.3009	28.919	2481											
44.780	20.952	2020	384.6(513)	1.3254	28.919	2146	1.515	3250	1.958	0.63074	18.933	0.1172	2541	31.855	134.2		
COMBUSTOR	0	16	9 4														
44.800	76.442	2752	595.6(723)	1.3009	28.919	2481											
44.800	20.961	2021	384.8(514)	1.3254	28.919	2146	1.514	3248	1.958	0.63041	18.933	0.1173	2541	31.818	134.2		
COMBUSTOR	0	17	10 21														
46.250	55.596	2680	602.6(779)	1.3063	25.912	2592											
46.250	15.031	1953	371.8(550)	1.3314	25.912	2234	1.521	3398	2.160	0.59955	19.106	0.1244	2497	31.661	130.7	0.29	0.07
COMBUSTOR	0	18	11 21														
46.260	58.580	2586	602.6(751)	1.3106	25.817	2555											
46.260	15.016	1854	371.7(521)	1.3362	25.817	2184	1.556	3399	2.146	0.59925	19.106	0.1245	2497	31.650	130.7		
																0.29	0.01

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
47.305	56.625	2560	598.8(743)	1.3116	25.803	2544											
47.305	13.387	1797	358.9(504)	1.3386	25.803	2153	1.609	3465	2.146	0.55670	19.106	0.1340	2517	29.973	131.7	0.29	0.00
COMBUSTOR	0	20	13 21														
47.310	56.690	2558	598.7(742)	1.3117	25.801	2543											
47.310	13.376	1794	358.8(503)	1.3387	25.801	2152	1.611	3465	2.145	0.55769	19.106	0.1338	2516	30.032	131.7	0.29	0.00
COMBUSTOR	0	21	14 21														
48.110	56.442	2549	595.9(739)	1.3120	25.801	2539											
48.110	13.595	1797	359.6(504)	1.3386	25.800	2153	1.597	3438	2.144	0.51979	19.106	0.1435	2541	27.773	133.0	0.29	0.00
COMBUSTOR	0	22	15 21														
48.745	45.439	2514	606.4(797)	1.3155	23.497	2645											
48.745	12.477	1827	370.7(562)	1.3401	23.497	2276	1.509	3434	2.323	0.48484	19.273	0.1552	2553	25.872	132.5	0.57	0.04
COMBUSTOR	0	23	16 21														
48.755	47.730	2431	606.3(769)	1.3193	23.423	2609											
48.755	12.467	1740	370.6(534)	1.3445	23.422	2228	1.541	3434	2.309	0.48421	19.273	0.1554	2553	25.842	132.5	0.57	0.01
COMBUSTOR	0	24	17 21														
49.285	47.461	2414	604.6(763)	1.3200	23.411	2601											
49.285	11.925	1709	364.8(524)	1.3459	23.411	2210	1.567	3463	2.307	0.45286	19.273	0.1662	2582	24.373	134.0	0.57	0.00
COMBUSTOR	0	25	18 21														
50.695	47.331	2398	599.8(758)	1.3206	23.410	2594											
50.695	12.412	1717	367.9(527)	1.3456	23.410	2215	1.538	3407	2.305	0.38596	19.273	0.1950	2661	20.434	138.0	0.57	0.00
COMBUSTOR	0	26	19 21														
52.795	41.319	2367	589.8(752)	1.3217	23.266	2586											
52.795	5.600	1425	271.8(434)	1.3597	23.266	2035	1.960	3989	2.324	0.31820	19.387	0.2379	2745	19.725	141.6	0.58	0.00
COMBUSTOR	0	27	20 21														
53.295	43.164	2356	588.4(748)	1.3221	23.260	2580											
53.295	6.883	1480	292.0(452)	1.3570	23.260	2072	1.859	3851	2.319	0.30520	19.387	0.2488	2758	18.265	142.2	0.58	0.00
COMBUSTOR	0	28	21 4														
54.045	36.242	2632	586.0(840)	1.3094	23.515	2699											
54.045	10.915	1966	354.2(610)	1.3328	23.515	2354	1.447	3406	2.365	0.28769	19.387	0.2631	2788	15.227	143.8	0.58	0.10
COMBUSTOR	0	29	22 4														
54.805	31.921	2968	583.0(954)	1.2935	23.839	2830											
54.805	15.000	2492	411.5(785)	1.3098	23.839	2609	1.123	2929	2.406	0.27205	19.387	0.2782	2834	12.385	146.2	0.58	0.23
COMBUSTOR	0	30	23 4														
55.760	30.471	3158	578.3(1019)	1.2840	24.036	2896											
55.760	15.796	2723	418.8(863)	1.2993	24.038	2705	1.044	2825	2.424	0.25494	19.387	0.2969	2903	11.192	149.8	0.58	0.31
COMBUSTOR	0	31	24 5														
56.230	27.139	3858	575.8(1262)	1.2422	24.776	3101											
56.230	16.187	3481	423.8(1123)	1.2596	24.795	2965	0.930	2757	2.475	0.20575	19.387	0.3679	3187	8.817	164.4	0.58	0.59
COMBUSTOR	0	32	25 3														
56.285	27.076	3877	575.5(1268)	1.2409	24.797	3106											
56.285	15.917	3489	418.8(1125)	1.2589	24.818	2966	0.944	2800	2.476	0.20513	19.387	0.3698	3191	8.925	164.6	0.58	0.60
COMBUSTOR	0	33	26 3														
56.425	26.986	3901	574.7(1277)	1.2391	24.827	3111											
56.425	15.975	3518	419.2(1135)	1.2571	24.848	2975	0.938	2790	2.477	0.20370	19.387	0.3716	3201	8.831	165.1	0.58	0.61
COMBUSTOR	0	34	27 4														
56.505	27.365	3910	574.3(1280)	1.2385	24.838	3113											
56.505	16.417	3536	422.2(1142)	1.2561	24.859	2981	0.926	2758	2.476	0.20601	19.387	0.3674	3207	8.831	165.4	0.58	0.62
COMBUSTOR	0	35	28 3														
56.785	27.453	3954	572.8(1295)	1.2353	24.891	3123											
56.785	16.650	3587	422.4(1159)	1.2529	24.915	2995	0.916	2743	2.477	0.20526	19.387	0.3688	3226	8.750	166.4	0.58	0.64
COMBUSTOR	0	36	29 3														
57.011	27.588	3975	571.6(1302)	1.2338	24.918	3128											
57.011	17.114	3625	427.0(1173)	1.2507	24.943	3006	0.895	2690	2.478	0.20495	19.387	0.3693	3240	8.566	167.1	0.58	0.65
COMBUSTOR	0	37	30 3														
57.735	27.785	3984	567.8(1305)	1.2330	24.939	3129											
57.735	18.600	3689	445.2(1196)	1.2473	24.961	3028	0.818	2477	2.477	0.20169	19.387	0.3753	3280	7.763	169.2	0.58	0.65

READING = 0095 BLOCK = 123 TIME = 211.449 MACH 5.2 PT = 300.250 TT = 2937.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 3														
58.755	28.206	3949	562.8(1293)	1.2355	24.914	3120											
58.755	19.912	3693	456.8(1198)	1.2478	24.932	3031	0.760	2304	2.474	0.20041	19.387	0.3777	3314	7.174	171.0	0.58	0.64
COMBUSTOR	0	39	32 4														
60.765	28.818	4005	553.9(1312)	1.2313	25.002	3131											
60.765	19.612	3723	435.9(1207)	1.2450	25.025	3034	0.801	2431	2.473	0.20739	19.387	0.3658	3298	7.834	170.1	0.58	0.68
COMBUSTOR	0	40	33 4														
62.185	29.113	4093	548.1(1343)	1.2245	25.120	3150											
62.185	18.281	3753	403.8(1216)	1.2415	25.152	3035	0.885	2687	2.475	0.21301	19.387	0.3553	3283	8.894	169.3	0.58	0.72
COMBUSTOR	0	41	34 2														
64.649	27.204	4074	537.6(1335)	1.2251	25.128	3142											
64.649	14.576	3621	348.0(1167)	1.2476	25.167	2987	1.031	3080	2.478	0.20191	19.387	0.3749	3256	9.665	167.9	0.58	0.73
COMBUSTOR	0	42	35 2														
65.025	25.247	4065	535.9(1332)	1.2250	25.123	3139											
65.025	13.793	3627	352.2(1170)	1.2471	25.161	2990	1.014	3032	2.483	0.18771	19.387	0.4032	3251	8.844	167.7	0.58	0.72
COMBUSTOR	REGEN	43	36 21														
65.025	25.247	4278	636.0(1412)	1.2111	25.081	3205											
65.025	14.871	3896	464.8(1269)	1.2314	25.137	3080	0.950	2927	2.507	0.18771	19.387	0.4032	3300	8.538	170.2	0.58	0.72
NOZZLE	AE	44	37 4														
87.261	25.247	4065	535.9(1312)	1.2250	25.123	3139											
87.261	0.704	1874	-277.7(557)	1.3176	25.182	2208	2.890	6381	2.483	0.03907	19.387	1.9371	4194	3.875	216.4	0.58	0.72
NOZZLE	PO	45	38 4														
87.261	25.247	4065	535.9(1312)	1.2250	25.123	3139											
87.261	0.418	1650	-350.2(484)	1.3282	25.182	2080	3.201	6659	2.483	0.02749	19.387	2.7538	4307	2.844	222.2	0.58	0.72
NOZZLE	AE REGEN	46	39 4														
87.261	25.247	4278	636.0(1412)	1.2111	25.081	3205											
87.261	0.749	2045	-221.3(613)	1.3104	25.182	2300	2.847	6550	2.507	0.03907	19.387	1.9371	4318	3.977	222.7	0.58	0.72
NOZZLE	PO REGEN	47	40 4														
87.261	25.247	4278	636.0(1412)	1.2111	25.081	3205											
87.261	0.418	1778	-309.1(525)	1.3219	25.182	2154	3.192	6877	2.507	0.02635	19.387	2.8728	4451	2.816	229.6	0.58	0.72
FICTIVE	COMBUSTR	67	60 0														
65.025	120.377	4671	535.9(1546)	1.1975	25.839	3281											
65.025	0.418	1405	-692.0(399)	1.3344	25.999	1894	4.140	7839	2.375	0.03924	19.387	1.9290	4930	4.780	254.3	0.58	1.00
FICTIVE	NOZZLE	68	61 0														
87.261	19.554	4002	509.5(1308)	1.2268	25.127	3117											
87.261	0.789	2008	-233.7(601)	1.3119	25.182	2280	2.674	6098	2.497	0.03907	19.387	1.9371	4066	3.703	209.8	0.58	0.72

READING = 0095 BLOCK = 123 TIME = 211.449 MACH 5.2 PT = 300.250 TT = 2937.1

XABS	P-IB	P-OB	PDA	GOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.055E 00	0.000	-3.509E-01	0.000	0.000	0.000	2.470E-02	2.524E 00	3.514E-03	0.000	0.000
1.836E 01	1.055E 00	0.000	-3.504E 01	0.000	0.000	0.000	1.634E 02	2.524E 00	3.514E-03	0.000	0.000
3.070E 01	1.855E 00	0.000	-1.530E 02	0.000	0.000	0.000	5.053E 02	4.437E 00	6.178E-03	0.000	0.000
3.508E 01	3.051E 00	0.000	-3.120E 02	0.000	0.000	0.000	6.804E 02	7.299E 00	1.016E-02	0.000	0.000
3.516E 01	3.070E 00	4.354E 00	-3.596E 02	0.000	0.000	0.000	6.841E 02	7.345E 00	1.023E-02	1.041E 01	1.450E-02
3.517E 01	3.072E 00	4.339E 00	-3.596E 02	0.000	0.000	0.000	6.843E 02	7.348E 00	1.023E-02	1.038E 01	1.445E-02
3.555E 01	3.160E 00	3.387E 00	-3.656E 02	0.000	0.000	0.000	7.225E 02	7.559E 00	1.052E-02	8.102E 00	1.128E-02
3.583E 01	3.143E 00	2.675E 00	-3.739E 02	-2.891E 02	-2.891E 02	0.000	7.515E 02	7.519E 00	1.047E-02	6.399E 00	8.909E-03
3.606E 01	3.130E 00	3.658E 00	-3.806E 02	-2.928E 02	-2.928E 02	0.000	7.745E 02	7.487E 00	1.042E-02	8.750E 00	1.218E-02
3.648E 01	3.528E 00	5.492E 00	-3.899E 02	-3.000E 02	-3.000E 02	0.000	8.183E 02	8.440E 00	1.175E-02	1.314E 01	1.829E-02
3.701E 01	3.315E 00	7.806E 00	-4.010E 02	-3.485E 02	-3.095E 02	-3.896E 01	8.743E 02	7.930E 00	1.104E-02	1.867E 01	2.600E-02
3.729E 01	4.260E 00	9.050E 00	-4.070E 02	-3.654E 02	-3.148E 02	-5.063E 01	9.048E 02	1.019E 01	1.419E-02	2.165E 01	3.014E-02
3.803E 01	6.697E 00	1.084E 01	-4.473E 02	-4.095E 02	-3.293E 02	-8.023E 01	9.851E 02	1.602E 01	2.231E-02	2.594E 01	3.611E-02
3.831E 01	8.719E 00	1.154E 01	-4.667E 02	-4.271E 02	-3.354E 02	-9.166E 01	1.017E 03	2.086E 01	2.904E-02	2.760E 01	3.843E-02
3.875E 01	1.181E 01	1.180E 01	-5.022E 02	-4.552E 02	-3.462E 02	-1.090E 02	1.066E 03	2.824E 01	3.932E-02	2.824E 01	3.931E-02
3.878E 01	1.205E 01	1.182E 01	-5.050E 02	-4.575E 02	-3.471E 02	-1.104E 02	1.070E 03	2.883E 01	4.014E-02	2.829E 01	3.938E-02
3.901E 01	1.365E 01	1.265E 01	-5.210E 02	-4.728E 02	-3.534E 02	-1.194E 02	1.096E 03	3.265E 01	4.546E-02	3.027E 01	4.214E-02
3.929E 01	1.338E 01	1.370E 01	-5.370E 02	-4.929E 02	-3.621E 02	-1.307E 02	1.129E 03	3.201E 01	4.457E-02	3.277E 01	4.563E-02
3.950E 01	1.319E 01	9.692E 00	-5.462E 02	-5.078E 02	-3.689E 02	-1.388E 02	1.152E 03	3.155E 01	4.392E-02	2.319E 01	3.228E-02
3.978E 01	1.411E 01	4.125E 00	-5.636E 02	-5.291E 02	-3.792E 02	-1.499E 02	1.185E 03	3.376E 01	4.701E-02	9.868E 00	1.374E-02
4.000E 01	1.481E 01	4.169E 00	-5.805E 02	-5.458E 02	-3.876E 02	-1.582E 02	1.211E 03	3.543E 01	4.933E-02	9.974E 00	1.389E-02
4.040E 01	1.701E 01	4.252E 00	-6.124E 02	-5.777E 02	-4.043E 02	-1.734E 02	1.257E 03	4.070E 01	5.666E-02	1.017E 01	1.416E-02
4.041E 01	1.707E 01	4.254E 00	-6.132E 02	-5.786E 02	-4.048E 02	-1.738E 02	1.259E 03	4.083E 01	5.684E-02	1.018E 01	1.417E-02
4.128E 01	2.185E 01	4.433E 00	-6.899E 02	-6.580E 02	-4.456E 02	-2.125E 02	1.362E 03	5.227E 01	7.278E-02	1.061E 01	1.477E-02
4.134E 01	2.221E 01	4.447E 00	-6.959E 02	-6.647E 02	-4.489E 02	-2.158E 02	1.369E 03	5.313E 01	7.397E-02	1.064E 01	1.481E-02
4.150E 01	2.306E 01	4.953E 00	-7.106E 02	-6.806E 02	-4.569E 02	-2.237E 02	1.388E 03	5.517E 01	7.681E-02	1.185E 01	1.650E-02
4.246E 01	1.436E 01	8.089E 00	-7.629E 02	-7.855E 02	-5.099E 02	-2.756E 02	1.503E 03	3.436E 01	4.784E-02	1.935E 01	2.694E-02
4.406E 01	1.899E 01	1.333E 01	-7.892E 02	-9.719E 02	-5.998E 02	-3.721E 02	1.697E 03	4.543E 01	6.325E-02	3.189E 01	4.440E-02
4.431E 01	1.970E 01	1.338E 01	-7.942E 02	-9.998E 02	-6.131E 02	-3.867E 02	1.727E 03	4.712E 01	6.561E-02	3.200E 01	4.456E-02
4.478E 01	2.105E 01	1.347E 01	-8.055E 02	-1.048E 03	-6.383E 02	-4.097E 02	1.784E 03	5.037E 01	7.012E-02	3.222E 01	4.486E-02
4.480E 01	2.111E 01	1.347E 01	-8.059E 02	-1.050E 03	-6.393E 02	-4.106E 02	1.786E 03	5.050E 01	7.032E-02	3.223E 01	4.487E-02
4.625E 01	1.631E 01	1.375E 01	-8.063E 02	-1.169E 03	-7.148E 02	-4.540E 02	1.965E 03	3.903E 01	5.433E-02	3.289E 01	4.579E-02
4.626E 01	1.628E 01	1.375E 01	-8.062E 02	-1.169E 03	-7.153E 02	-4.542E 02	1.966E 03	3.895E 01	5.422E-02	3.289E 01	4.580E-02
4.730E 01	1.282E 01	1.398E 01	-7.743E 02	-1.242E 03	-7.679E 02	-4.740E 02	2.095E 03	3.067E 01	4.271E-02	3.337E 01	4.646E-02
4.731E 01	1.281E 01	1.394E 01	-7.751E 02	-1.242E 03	-7.682E 02	-4.741E 02	2.096E 03	3.063E 01	4.265E-02	3.336E 01	4.644E-02
4.811E 01	1.406E 01	1.313E 01	-7.412E 02	-1.297E 03	-8.076E 02	-4.890E 02	2.196E 03	3.364E 01	4.684E-02	3.140E 01	4.372E-02
4.874E 01	1.248E 01	1.248E 01	-7.033E 02	-1.339E 03	-8.383E 02	-5.004E 02	2.275E 03	2.985E 01	4.156E-02	2.985E 01	4.156E-02
4.875E 01	1.247E 01	1.247E 01	-7.026E 02	-1.339E 03	-8.388E 02	-5.005E 02	2.276E 03	2.982E 01	4.152E-02	2.982E 01	4.152E-02
4.928E 01	1.192E 01	1.192E 01	-6.689E 02	-1.374E 03	-8.641E 02	-5.097E 02	2.343E 03	2.853E 01	3.972E-02	2.853E 01	3.972E-02
5.069E 01	1.241E 01	1.241E 01	-5.790E 02	-1.465E 03	-9.298E 02	-5.351E 02	2.521E 03	2.969E 01	4.134E-02	2.969E 01	4.134E-02
5.279E 01	5.600E 00	5.600E 00	-4.798E 02	-1.591E 03	-1.023E 03	-5.676E 02	2.787E 03	1.340E 01	1.865E-02	1.340E 01	1.865E-02
5.329E 01	6.883E 00	6.883E 00	-4.636E 02	-1.618E 03	-1.045E 03	-5.736E 02	2.851E 03	1.647E 01	2.293E-02	1.647E 01	2.293E-02
5.404E 01	1.091E 01	1.091E 01	-4.292E 02	-1.665E 03	-1.076E 03	-5.883E 02	2.946E 03	2.611E 01	3.635E-02	2.611E 01	3.635E-02
5.480E 01	1.500E 01	1.500E 01	-3.789E 02	-1.723E 03	-1.108E 03	-6.153E 02	3.044E 03	3.588E 01	4.996E-02	3.588E 01	4.996E-02
5.576E 01	1.580E 01	1.580E 01	-3.052E 02	-1.813E 03	-1.146E 03	-6.669E 02	3.167E 03	3.779E 01	5.261E-02	3.779E 01	5.261E-02
5.623E 01	1.619E 01	1.619E 01	-2.039E 01	-1.862E 03	-1.163E 03	-6.997E 02	3.209E 03	3.872E 01	5.391E-02	3.872E 01	5.391E-02
5.628E 01	1.560E 01	1.623E 01	-1.578E 01	-1.868E 03	-1.164E 03	-7.039E 02	3.217E 03	3.732E 01	5.196E-02	3.883E 01	5.407E-02
5.642E 01	1.560E 01	1.635E 01	-5.165E 00	-1.883E 03	-1.169E 03	-7.145E 02	3.234E 03	3.732E 01	5.196E-02	3.911E 01	5.445E-02
5.650E 01	1.642E 01	1.642E 01	1.415E 00	-1.892E 03	-1.171E 03	-7.205E 02	3.245E 03	3.927E 01	5.468E-02	3.927E 01	5.468E-02
5.678E 01	1.665E 01	1.665E 01	2.300E 01	-1.921E 03	-1.179E 03	-7.414E 02	3.280E 03	3.983E 01	5.545E-02	3.983E 01	5.545E-02
5.701E 01	1.711E 01	1.711E 01	3.943E 01	-1.944E 03	-1.186E 03	-7.580E 02	3.309E 03	4.094E 01	5.700E-02	4.094E 01	5.700E-02
5.773E 01	1.860E 01	1.860E 01	8.784E 01	-2.017E 03	-1.207E 03	-8.105E 02	3.402E 03	4.449E 01	6.195E-02	4.449E 01	6.195E-02
5.875E 01	1.991E 01	1.991E 01	1.324E 02	-2.113E 03	-1.235E 03	-8.785E 02	3.532E 03	4.763E 01	6.632E-02	4.763E 01	6.632E-02
6.076E 01	1.961E 01	1.961E 01	1.371E 02	-2.286E 03	-1.287E 03	-9.988E 02	3.790E 03	4.692E 01	6.532E-02	4.692E 01	6.532E-02
6.218E 01	1.828E 01	1.828E 01	1.371E 02	-2.400E 03	-1.326E 03	-1.074E 03	3.972E 03	4.373E 01	6.089E-02	4.373E 01	6.089E-02
6.465E 01	1.458E 01	1.458E 01	1.371E 02	-2.603E 03	-1.406E 03	-1.197E 03	4.289E 03	3.487E 01	4.855E-02	3.487E 01	4.855E-02

READING = 0095 BLOCK = 123 TIME = 211.449 MACH 5.2 PT = 300.250 TT = 2937.1

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.502E 01	1.357E 01	1.401E 01	1.371E 02	-2.635E 03	-1.419E 03	-1.215E 03	4.337E 03	3.247E 01	4.521E-02	3.352E 01	4.666E-02
6.506E 01	1.357E 01	1.395E 01	1.371E 02	-2.638E 03	-1.421E 03	-1.217E 03	4.342E 03	3.247E 01	4.521E-02	3.337E 01	4.646E-02
6.526E 01	1.275E 01	1.365E 01	1.371E 02	-2.654E 03	-1.428E 03	-1.226E 03	4.368E 03	3.049E 01	4.245E-02	3.265E 01	4.546E-02
6.692E 01	5.875E 00	5.587E 00	2.428E 02	-2.761E 03	-1.476E 03	-1.285E 03	4.583E 03	1.405E 01	1.957E-02	1.337E 01	1.861E-02
6.759E 01	4.384E 00	5.325E 00	3.498E 02	-2.792E 03	-1.490E 03	-1.302E 03	4.665E 03	1.049E 01	1.460E-02	1.274E 01	1.774E-02
6.836E 01	2.670E 00	4.170E 00	4.626E 02	-2.825E 03	-1.502E 03	-1.322E 03	4.760E 03	6.387E 00	8.893E-03	9.975E 00	1.389E-02
6.908E 01	2.272E 00	3.090E 00	5.403E 02	-2.855E 03	-1.512E 03	-1.343E 03	4.848E 03	5.435E 00	7.567E-03	7.392E 00	1.029E-02
6.969E 01	1.935E 00	2.413E 00	5.926E 02	-2.881E 03	-1.520E 03	-1.361E 03	4.922E 03	4.629E 00	6.445E-03	5.773E 00	8.038E-03
7.064E 01	1.567E 00	1.360E 00	6.509E 02	-2.917E 03	-1.531E 03	-1.385E 03	5.036E 03	3.748E 00	5.218E-03	3.253E 00	4.530E-03
7.107E 01	1.400E 00	1.378E 00	6.714E 02	-2.931E 03	-1.536E 03	-1.395E 03	5.088E 03	3.349E 00	4.663E-03	3.295E 00	4.588E-03
7.260E 01	2.256E 00	1.440E 00	7.507E 02	-2.973E 03	-1.551E 03	-1.422E 03	5.273E 03	5.397E 00	7.514E-03	3.445E 00	4.796E-03
7.275E 01	2.340E 00	1.292E 00	7.592E 02	-2.977E 03	-1.552E 03	-1.425E 03	5.290E 03	5.598E 00	7.794E-03	3.092E 00	4.305E-03
7.350E 01	1.942E 00	5.550E-01	8.060E 02	-2.997E 03	-1.558E 03	-1.439E 03	5.374E 03	4.644E 00	6.466E-03	1.328E 00	1.848E-03
7.351E 01	1.939E 00	5.511E-01	8.071E 02	-2.997E 03	-1.558E 03	-1.439E 03	5.375E 03	4.639E 00	6.459E-03	1.318E 00	1.835E-03
7.483E 01	1.235E 00	0.000	8.406E 02	-3.035E 03	-1.567E 03	-1.468E 03	5.427E 03	2.954E 00	4.113E-03	0.000	0.000
7.768E 01	1.290E 00	0.000	8.911E 02	-3.104E 03	-1.582E 03	-1.522E 03	5.525E 03	3.086E 00	4.296E-03	0.000	0.000
8.158E 01	9.050E-01	0.000	9.380E 02	-3.117E 03	-1.595E 03	-1.522E 03	5.630E 03	2.165E 00	3.014E-03	0.000	0.000
8.439E 01	8.950E-01	0.000	9.580E 02	-3.128E 03	-1.606E 03	-1.522E 03	5.684E 03	2.141E 00	2.981E-03	0.000	0.000
8.725E 01	1.135E 00	0.000	9.825E 02	-3.147E 03	-1.625E 03	-1.522E 03	5.707E 03	2.715E 00	3.780E-03	0.000	0.000
8.726E 01	1.136E 00	0.000	9.825E 02	-3.147E 03	-1.625E 03	-1.522E 03	5.707E 03	2.716E 00	3.782E-03	0.000	0.000

READING = 0095 BLOCK = 123 TIME = 211.449 MACH 5.2 PT = 300.250 TT = 2937.1

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.550E 01	9.550E 01	2.608E-03	3.491E-02
4.041E 01	1.276E-01	9.562E 01	2.621E-03	3.735E-02
4.128E 01	1.094E 01	1.066E 02	2.739E-03	3.960E-02
4.134E 01	8.124E-01	1.074E 02	2.748E-03	3.978E-02
4.150E 01	1.934E 00	1.093E 02	2.770E-03	4.023E-02
4.246E 01	1.177E 01	1.211E 02	2.844E-03	4.117E-02
4.406E 01	1.893E 01	1.400E 02	2.881E-03	4.042E-02
4.431E 01	2.807E 00	1.428E 02	2.891E-03	4.048E-02
4.478E 01	5.358E 00	1.482E 02	2.915E-03	4.068E-02
4.480E 01	2.285E-01	1.484E 02	2.916E-03	4.068E-02
4.625E 01	1.789E 01	1.663E 02	3.412E-03	2.978E-02
4.626E 01	1.281E-01	1.664E 02	3.050E-03	3.371E-02
4.730E 01	1.199E 01	1.784E 02	2.959E-03	3.164E-02
4.731E 01	6.350E-02	1.785E 02	2.949E-03	3.175E-02
4.811E 01	8.456E 00	1.869E 02	2.921E-03	3.167E-02
4.874E 01	6.694E 00	1.936E 02	3.361E-03	2.673E-02
4.875E 01	1.033E-01	1.937E 02	3.017E-03	3.002E-02
4.928E 01	4.959E 00	1.987E 02	2.925E-03	2.949E-02
5.069E 01	1.149E 01	2.102E 02	2.851E-03	2.941E-02
5.279E 01	1.500E 01	2.252E 02	2.760E-03	1.721E-02
5.329E 01	3.308E 00	2.285E 02	2.705E-03	1.983E-02
5.404E 01	4.375E 00	2.329E 02	2.749E-03	2.554E-02
5.480E 01	3.863E 00	2.367E 02	2.998E-03	2.678E-02
5.576E 01	4.450E 00	2.412E 02	3.151E-03	2.503E-02
5.623E 01	1.351E 00	2.425E 02	3.142E-03	2.326E-02
5.628E 01	2.044E-01	2.427E 02	3.400E-03	2.083E-02
5.642E 01	5.368E-01	2.433E 02	3.405E-03	2.076E-02
5.650E 01	3.111E-01	2.436E 02	3.479E-03	2.036E-02
5.678E 01	1.079E 00	2.446E 02	3.404E-03	2.103E-02
5.701E 01	8.518E-01	2.455E 02	3.420E-03	2.100E-02
5.773E 01	2.596E 00	2.481E 02	3.446E-03	2.083E-02
5.875E 01	3.375E 00	2.515E 02	3.468E-03	2.063E-02
6.076E 01	6.661E 00	2.581E 02	3.416E-03	2.149E-02
6.218E 01	5.181E 00	2.633E 02	3.383E-03	2.194E-02
6.465E 01	9.921E 00	2.732E 02	3.380E-03	2.024E-02
6.502E 01	1.519E 00	2.748E 02	3.426E-03	1.904E-02
6.506E 01	1.568E-01	2.749E 02	3.476E-03	1.936E-02
6.526E 01	8.004E-01	2.757E 02	3.463E-03	1.921E-02
6.692E 01	6.922E 00	2.826E 02	3.267E-03	1.324E-02
6.759E 01	2.589E 00	2.852E 02	3.236E-03	1.198E-02
6.836E 01	2.742E 00	2.880E 02	3.173E-03	9.556E-03
6.908E 01	2.246E 00	2.902E 02	3.128E-03	8.092E-03
6.969E 01	1.696E 00	2.919E 02	3.092E-03	6.987E-03
7.064E 01	2.243E 00	2.941E 02	3.027E-03	5.250E-03
7.107E 01	8.978E-01	2.950E 02	3.018E-03	5.049E-03
7.260E 01	3.396E 00	2.984E 02	3.057E-03	6.198E-03
7.275E 01	3.411E-01	2.988E 02	3.053E-03	6.119E-03
7.350E 01	1.504E 00	3.003E 02	2.991E-03	4.649E-03
7.351E 01	2.578E-03	3.003E 02	2.991E-03	4.640E-03
7.483E 01	8.222E-01	3.011E 02	2.982E-03	4.600E-03
7.768E 01	1.567E 00	3.027E 02	2.975E-03	4.726E-03
8.158E 01	1.524E 00	3.042E 02	2.900E-03	3.602E-03
8.439E 01	7.031E-01	3.049E 02	2.885E-03	3.554E-03
8.725E 01	3.122E-01	3.052E 02	2.909E-03	4.227E-03
8.726E 01	0.000	3.052E 02	2.909E-03	4.228E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	571.	(LBF)
MEASURED THRUST	420.	(LBF)
CALCULATED SPECIFIC IMPULSE	1613.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1186.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.2938	
MEASURED THRUST COEFFICIENT	0.2160	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4186.	(LBF)
NET THRUST	691.	(LBF)
SPECIFIC IMPULSE	1952.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.3555	

MOMENTUM AND FORCES

INLET FRICTION DRAG	95.5	(LBF)
INLET MOMENTUM CHANGE	-707.9	(LBF)
COMBUSTOR FRICTION DRAG	179.3	(LBF)
COMBUSTOR STRUT DRAG	60.61	(LBF)
COMBUSTOR MOMENTUM CHANGE	464.	(LBF)
NOZZLE FRICTION DRAG	30.47	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	815.	(LBF)
NOZZLE PRESSURE INTEGRAL	845.	(LBF)
EXTERNAL FRICTION DRAG	40.91	(LBF)
EXTERNAL PRESSURE INTEGRAL	-946.	(LBF)
TOTAL EXTERNAL DRAG	-987.	(LBF)
TOTAL STRUT DRAG	60.61	(LBF)
CAVITY FORCE	-1347.	(LBF)
CALCULATED LOAD CELL FORCE	-1762.	(LBF)
MEASURED LOAD CELL FORCE	-1914.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-147.3, -118.8,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2849	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	87.261	(IN)
STRUT LEADING EDGE	56.425	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	65.025	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8655	
ADDITIVE DRAG COEFFICIENT	0.8110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2549	
DELTA PT2	0.0924	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4009	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2594	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8956	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9127	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9066	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8750	
ENTHALPY AT P0 - SUPERSONIC	27.51	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	48.21	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0186
EQUIVALENCE RATIO	0.579
COMBUSTOR EFFICIENCY	0.724
TOTAL PRESSURE RATIO	0.2097
COMBUSTOR EFFECTIVENESS	0.7075
INJECTOR DISCHARGE COEFFICIENTS	1.0844, 0.8041,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9695
NOZZLE COEFFICIENT - CT	0.8959
PROCESS EFFICIENCY	0.9562
KINETIC ENERGY EFFICIENCY	0.9331

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.270	
1C	44.300	
2A	48.745	D
2C	46.250	E
3A	54.035	
3B	56.220	
4	44.770	

Reading 95

t = 217.75 sec.

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	300.000	2944	653.1(779)	1.2949	28.919	2560											
0.000	0.383	513	-5.8(123)	1.3988	28.919	1111	5.171	5742	1.885	0.08027	17.795	0.8655	3261	7.163	183.2		
SPIKE TIP NS		2	0 7														
0.600	14.337	2944	653.1(779)	1.2947	28.919	2560											
0.600	13.120	2885	635.3(761)	1.2966	28.919	2536	0.372	943	2.094	0.08027	17.795	0.8655	3430	1.177	192.8		
WIND TUNNEL		3	0 0														
0.000	300.000	2944	653.1(779)	1.2949	28.919	2560											
0.000	0.419	526	-2.5(127)	1.3987	28.919	1125	5.092	5728	1.885	0.08545	18.942	0.8655	3465	7.606	182.9		
SPIKE TIP NS		4	0 0														
0.600	14.337	2944	653.1(779)	1.2947	28.919	2560											
0.600	12.935	2876	632.5(759)	1.2969	28.919	2532	0.401	1015	2.094	0.08545	18.942	0.8655	3465	1.348	182.9		
INLET THROAT		5	0 4														
40.400	121.624	2837	620.9(747)	1.2982	28.919	2516											
40.400	13.523	1667	287.3(416)	1.3396	28.919	1960	2.085	4086	1.935	0.62007	18.942	0.1128	2793	41.906	147.5		
INLET UPNRSK		6	0 3														
40.400	121.624	2837	620.9(747)	1.2982	28.919	2516											
40.400	12.775	1643	280.9(410)	1.3408	28.919	1946	2.119	4125	1.935	0.60002	18.942	0.1233	2832	38.464	149.5		
INLET DNNRSK		7	0 4														
40.400	78.104	2837	620.9(747)	1.2982	28.919	2516											
40.400	64.559	2715	584.6(712)	1.3021	28.919	2465	0.547	1348	1.966	0.60002	18.942	0.1233	2832	12.572	149.5		
COMBUSTOR	0	8	1 4														
40.410	121.790	2837	620.9(747)	1.2982	28.919	2516											
40.410	15.069	1713	299.7(429)	1.3375	28.919	1985	2.020	4009	1.935	0.65994	18.942	0.1121	2793	41.112	147.4		
COMBUSTOR	0	9	2 4														
41.280	102.437	2822	616.4(743)	1.2987	28.919	2510											
41.280	17.405	1844	335.7(465)	1.3320	28.919	2055	1.824	3748	1.946	0.66189	18.942	0.1117	2705	38.549	142.8		
COMBUSTOR	0	10	3 4														
41.345	101.189	2821	616.1(743)	1.2988	28.919	2510											
41.345	17.611	1854	338.5(467)	1.3316	28.919	2060	1.809	3726	1.946	0.66226	18.942	0.1117	2698	38.352	142.4		
COMBUSTOR	0	11	4 4														
41.500	98.299	2818	615.1(742)	1.2989	28.919	2508											
41.500	18.124	1879	345.3(474)	1.3306	28.919	2073	1.772	3674	1.948	0.66323	18.942	0.1115	2681	37.871	141.5		
COMBUSTOR	0	12	5 5														
42.460	87.565	2798	609.2(736)	1.2995	28.919	2500											
42.460	19.841	1962	368.4(497)	1.3275	28.919	2116	1.640	3471	1.954	0.65671	18.942	0.1126	2616	35.421	138.1		
COMBUSTOR	0	13	6 4														
44.065	80.026	2762	598.4(725)	1.3006	28.919	2485											
44.065	20.180	1987	375.3(504)	1.3266	28.919	2129	1.570	3341	1.956	0.63502	18.942	0.1165	2569	32.974	135.6		
COMBUSTOR	0	14	7 4														
44.310	79.097	2756	596.8(724)	1.3008	28.919	2483											
44.310	20.315	1992	376.6(506)	1.3265	28.919	2131	1.557	3319	1.956	0.63349	18.942	0.1167	2562	32.676	135.2		
COMBUSTOR	0	15	8 3														
44.780	77.321	2747	594.0(721)	1.3011	28.919	2479											
44.780	20.638	2003	379.9(509)	1.3260	28.919	2137	1.532	3273	1.957	0.63103	18.942	0.1172	2547	32.099	134.4		
COMBUSTOR	0	16	9 3														
44.800	77.230	2746	593.9(721)	1.3011	28.919	2479											
44.800	20.641	2004	380.0(509)	1.3260	28.919	2137	1.531	3271	1.957	0.63070	18.942	0.1173	2546	32.065	134.4		
COMBUSTOR	0	17	10 21														
46.250	57.749	2665	602.5(788)	1.3072	25.455	2608											
46.250	18.215	2017	392.8(580)	1.3295	25.455	2288	1.416	3239	2.186	0.60078	19.146	0.1244	2508	30.245	131.0	0.34	0.07
COMBUSTOR	0	18	11 21														
46.260	60.890	2556	602.5(754)	1.3122	25.348	2565											
46.260	18.217	1903	392.8(546)	1.3350	25.348	2232	1.451	3239	2.170	0.60046	19.146	0.1245	2508	30.226	131.0	0.34	0.01

READING = 0095 BLOCK = 130 TIME = 217.749 MACH 5.2 PT = 300.000 TT = 2944.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
47.305	60.937	2527	598.3(745)	1.3134	25.332	2552											
47.305	18.435	1885	392.6(540)	1.3358	25.332	2223	1.443	3208	2.166	0.55784	19.146	0.1340	2542	27.813	132.8	0.34	0.00
COMBUSTOR	0	20	13 21														
47.310	61.015	2525	598.3(744)	1.3135	25.330	2551											
47.310	18.429	1883	392.5(539)	1.3360	25.330	2222	1.444	3209	2.166	0.55883	19.146	0.1338	2541	27.865	132.7	0.34	0.00
COMBUSTOR	0	21	14 3														
48.110	59.801	2547	595.1(751)	1.3123	25.361	2560											
48.110	19.896	1947	402.3(559)	1.3332	25.361	2256	1.377	3106	2.170	0.52086	19.146	0.1435	2580	25.141	134.7	0.34	0.02
COMBUSTOR	0	22	15 21														
48.745	49.815	2481	608.7(816)	1.3177	22.572	2684											
48.745	18.211	1936	413.9(622)	1.3371	22.572	2388	1.308	3122	2.385	0.48700	19.359	0.1552	2603	23.630	134.4	0.69	0.04
COMBUSTOR	0	23	16 21														
48.755	52.260	2375	608.7(780)	1.3225	22.481	2636											
48.755	18.204	1826	413.8(585)	1.3425	22.481	2328	1.341	3123	2.367	0.48637	19.359	0.1554	2603	23.602	134.5	0.69	0.01
COMBUSTOR	0	24	17 21														
49.285	52.482	2354	606.6(772)	1.3235	22.467	2626											
49.285	17.812	1796	409.3(575)	1.3438	22.467	2311	1.360	3142	2.364	0.45487	19.359	0.1662	2649	22.211	136.8	0.69	0.00
COMBUSTOR	0	25	18 5														
50.695	45.449	2668	601.1(881)	1.3089	22.754	2762											
50.695	18.187	2139	409.5(690)	1.3271	22.754	2490	1.243	3096	2.413	0.38767	19.359	0.1958	2771	18.654	143.2	0.69	0.11
COMBUSTOR	0	26	19 5														
52.795	39.450	3016	589.5(1008)	1.2921	22.971	2904											
52.795	16.500	2465	383.4(805)	1.3111	22.972	2644	1.214	3211	2.468	0.31960	19.472	0.2379	2949	15.950	151.4	0.70	0.23
COMBUSTOR	0	27	20 4														
53.295	38.449	3095	587.5(1036)	1.2882	23.050	2933											
53.295	15.867	2526	373.6(826)	1.3079	23.051	2669	1.226	3271	2.477	0.30655	19.472	0.2480	2988	15.585	153.4	0.70	0.25
COMBUSTOR	0	28	21 4														
54.045	36.580	3268	584.4(1097)	1.2794	23.222	2992											
54.045	16.256	2724	376.9(895)	1.2987	23.225	2752	1.171	3222	2.494	0.28896	19.472	0.2631	3046	14.469	156.4	0.70	0.31
COMBUSTOR	0	29	22 4														
54.805	35.040	3442	580.9(1160)	1.2699	23.402	3047											
54.805	16.650	2926	380.1(966)	1.2891	23.407	2830	1.120	3170	2.509	0.27325	19.472	0.2782	3105	13.461	159.5	0.70	0.37
COMBUSTOR	0	30	23 4														
55.760	33.849	3585	576.2(1211)	1.2615	23.557	3089											
55.760	15.179	3020	353.2(998)	1.2835	23.566	2860	1.168	3340	2.520	0.25606	19.472	0.2969	3176	13.293	163.1	0.70	0.43
COMBUSTOR	0	31	24 5														
56.230	29.264	4249	573.8(1453)	1.2139	24.273	3250											
56.230	14.455	3738	343.6(1255)	1.2403	24.332	3078	1.103	3394	2.564	0.20666	19.472	0.3679	3416	10.900	175.4	0.70	0.68
COMBUSTOR	0	32	25 3														
56.285	29.379	4225	573.5(1444)	1.2158	24.246	3245											
56.285	13.685	3671	326.8(1229)	1.2442	24.305	3057	1.150	3514	2.563	0.20604	19.472	0.3690	3420	11.251	175.6	0.70	0.67
COMBUSTOR	0	33	26 3														
56.425	29.271	4244	572.8(1451)	1.2142	24.270	3249											
56.425	13.577	3688	323.8(1236)	1.2429	24.332	3061	1.153	3530	2.564	0.20460	19.472	0.3716	3429	11.224	176.1	0.70	0.68
COMBUSTOR	0	34	27 4														
56.505	29.576	4272	572.4(1461)	1.2120	24.303	3255											
56.505	14.031	3734	328.8(1252)	1.2400	24.368	3073	1.136	3491	2.564	0.20692	19.472	0.3674	3434	11.228	176.3	0.70	0.69
COMBUSTOR	0	35	28 3														
56.785	29.743	4288	571.1(1467)	1.2108	24.324	3258											
56.785	13.600	3724	315.5(1248)	1.2401	24.394	3068	1.166	3576	2.564	0.20617	19.472	0.3688	3449	11.458	177.1	0.70	0.70
COMBUSTOR	0	36	29 4														
57.011	29.619	4357	570.0(1492)	1.2050	24.405	3270											
57.011	14.361	3839	328.9(1290)	1.2322	24.483	3099	1.121	3473	2.567	0.20585	19.472	0.3693	3461	11.111	177.7	0.70	0.73
COMBUSTOR	0	37	30 4														
57.735	29.280	4502	566.6(1545)	1.1924	24.581	3295											
57.735	16.800	4116	373.4(1393)	1.2124	24.672	3171	0.980	3109	2.572	0.20258	19.472	0.3753	3496	9.787	179.6	0.70	0.80

READING = 0095 BLOCK = 130 TIME = 217.749 MACH 5.2 PT = 300.000 TT = 2944.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 3														
58.755	29.727	4475	562.0(1535)	1.1948	24.562	3290											
58.755	19.687	4187	417.8(1422)	1.2095	24.630	3197	0.840	2686	2.569	0.20130	19.472	0.3777	3530	8.402	181.3	0.70	0.79
COMBUSTOR	0	39	32 3														
60.765	30.602	4467	553.2(1532)	1.1956	24.577	3287											
60.765	20.025	4170	405.3(1415)	1.2107	24.645	3192	0.852	2720	2.565	0.20830	19.472	0.3658	3518	8.805	180.7	0.70	0.79
COMBUSTOR	0	40	33 4														
62.185	31.104	4514	547.1(1548)	1.1917	24.647	3294											
62.185	19.031	4173	375.4(1414)	1.2090	24.732	3185	0.920	2931	2.564	0.21395	19.472	0.3553	3506	9.746	180.1	0.70	0.82
COMBUSTOR	0	41	34 3														
64.649	29.249	4474	536.0(1533)	1.1938	24.633	3283											
64.649	15.386	4027	316.2(1358)	1.2173	24.730	3139	1.056	3316	2.566	0.20280	19.472	0.3749	3485	10.452	178.9	0.70	0.81
COMBUSTOR	0	42	35 2														
65.025	27.151	4469	534.2(1531)	1.1931	24.631	3281											
65.025	14.502	4034	319.6(1361)	1.2162	24.729	3141	1.044	3277	2.571	0.18853	19.472	0.4032	3481	9.602	178.8	0.70	0.81
COMBUSTOR REGEN		43	36 21														
65.025	27.151	4623	624.8(1592)	1.1827	24.560	3327											
65.025	15.028	4223	413.7(1435)	1.2027	24.683	3198	1.016	3251	2.591	0.18853	19.472	0.4032	3519	9.524	180.7	0.70	0.81
NOZZLE AE		44	37 4														
87.261	27.151	4469	534.2(1501)	1.1931	24.631	3281											
87.261	0.792	2210	-396.5(685)	1.2981	24.800	2398	2.846	6824	2.571	0.03925	19.472	1.9371	4523	4.162	232.3	0.70	0.81
NOZZLE PO		45	38 4														
87.261	27.151	4469	534.2(1501)	1.1931	24.631	3281											
87.261	0.419	1905	-501.1(581)	1.3108	24.800	2238	3.217	7198	2.571	0.02543	19.472	2.9892	4677	2.845	240.2	0.70	0.81
NOZZLE AE REGEN		46	39 4														
87.261	27.151	4623	624.8(1592)	1.1827	24.560	3327											
87.261	0.831	2365	-342.0(740)	1.2922	24.800	2475	2.810	6956	2.591	0.03925	19.472	1.9372	4622	4.242	237.4	0.70	0.81
NOZZLE PO REGEN		47	40 4														
87.261	27.151	4623	624.8(1592)	1.1827	24.560	3327											
87.261	0.419	2020	-462.0(620)	1.3058	24.800	2300	3.207	7374	2.591	0.02458	19.472	3.0935	4796	2.817	246.3	0.70	0.81
FICTIVE COMBUSTR		67	60 0														
65.025	121.624	4930	534.2(1702)	1.1801	25.168	3390											
65.025	0.419	1571	-831.6(463)	1.3211	25.453	2014	4.106	8267	2.457	0.03636	19.472	2.0912	5228	4.671	268.5	0.70	1.00
FICTIVE NOZZLE		68	61 0														
87.261	18.692	4413	512.2(1509)	1.1916	24.628	3258											
87.261	0.945	2470	-304.6(777)	1.2882	24.800	2526	2.531	6393	2.597	0.03925	19.472	1.9371	4338	3.899	222.8	0.70	0.81

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.060E 00	0.000	-3.515E-01	0.000	0.000	0.000	2.470E-02	2.527E 00	3.533E-03	0.000	0.000
1.836E 01	1.060E 00	0.000	-3.520E 01	0.000	0.000	0.000	1.634E 02	2.527E 00	3.533E-03	0.000	0.000
3.070E 01	1.850E 00	0.000	-1.532E 02	0.000	0.000	0.000	5.053E 02	4.410E 00	6.167E-03	0.000	0.000
3.508E 01	3.050E 00	0.000	-3.119E 02	0.000	0.000	0.000	6.804E 02	7.271E 00	1.017E-02	0.000	0.000
3.516E 01	3.070E 00	4.350E 00	-3.595E 02	0.000	0.000	0.000	6.841E 02	7.319E 00	1.023E-02	1.037E 01	1.450E-02
3.517E 01	3.072E 00	4.335E 00	-3.596E 02	0.000	0.000	0.000	6.843E 02	7.323E 00	1.024E-02	1.033E 01	1.445E-02
3.555E 01	3.165E 00	3.385E 00	-3.656E 02	0.000	0.000	0.000	7.225E 02	7.545E 00	1.055E-02	8.070E 00	1.128E-02
3.583E 01	3.148E 00	2.675E 00	-3.739E 02	-3.013E 02	-3.013E 02	0.000	7.515E 02	7.505E 00	1.049E-02	6.377E 00	8.917E-03
3.606E 01	3.135E 00	3.660E 00	-3.806E 02	-3.052E 02	-3.052E 02	0.000	7.745E 02	7.473E 00	1.045E-02	8.724E 00	1.220E-02
3.648E 01	3.528E 00	5.497E 00	-3.899E 02	-3.127E 02	-3.127E 02	0.000	8.183E 02	8.411E 00	1.176E-02	1.310E 01	1.832E-02
3.701E 01	3.307E 00	7.816E 00	-4.010E 02	-3.651E 02	-3.226E 02	-4.247E 01	8.743E 02	7.885E 00	1.103E-02	1.863E 01	2.605E-02
3.729E 01	4.252E 00	9.062E 00	-4.069E 02	-3.833E 02	-3.281E 02	-5.520E 01	9.048E 02	1.014E 01	1.417E-02	2.160E 01	3.021E-02
3.803E 01	6.690E 00	1.084E 01	-4.471E 02	-4.307E 02	-3.432E 02	-8.747E 01	9.851E 02	1.595E 01	2.230E-02	2.583E 01	3.612E-02
3.831E 01	8.710E 00	1.152E 01	-4.665E 02	-4.495E 02	-3.496E 02	-9.993E 01	1.017E 03	2.076E 01	2.903E-02	2.747E 01	3.842E-02
3.875E 01	1.179E 01	1.180E 01	-5.019E 02	-4.796E 02	-3.608E 02	-1.189E 02	1.066E 03	2.812E 01	3.931E-02	2.814E 01	3.934E-02
3.878E 01	1.204E 01	1.182E 01	-5.046E 02	-4.821E 02	-3.617E 02	-1.204E 02	1.070E 03	2.871E 01	4.014E-02	2.819E 01	3.942E-02
3.901E 01	1.364E 01	1.264E 01	-5.206E 02	-4.985E 02	-3.683E 02	-1.302E 02	1.096E 03	3.251E 01	4.546E-02	3.014E 01	4.214E-02
3.929E 01	1.337E 01	1.367E 01	-5.367E 02	-5.199E 02	-3.774E 02	-1.425E 02	1.129E 03	3.187E 01	4.456E-02	3.260E 01	4.558E-02
3.950E 01	1.317E 01	9.678E 00	-5.459E 02	-5.358E 02	-3.844E 02	-1.513E 02	1.152E 03	3.141E 01	4.392E-02	2.307E 01	3.226E-02
3.978E 01	1.411E 01	4.125E 00	-5.633E 02	-5.585E 02	-3.951E 02	-1.634E 02	1.185E 03	3.364E 01	4.704E-02	9.833E 00	1.375E-02
4.000E 01	1.482E 01	4.171E 00	-5.802E 02	-5.762E 02	-4.038E 02	-1.724E 02	1.211E 03	3.533E 01	4.941E-02	9.943E 00	1.390E-02
4.040E 01	1.706E 01	4.257E 00	-6.122E 02	-6.102E 02	-4.212E 02	-1.890E 02	1.257E 03	4.067E 01	5.686E-02	1.015E 01	1.419E-02
4.041E 01	1.712E 01	4.259E 00	-6.129E 02	-6.111E 02	-4.216E 02	-1.895E 02	1.259E 03	4.080E 01	5.705E-02	1.015E 01	1.420E-02
4.128E 01	2.198E 01	4.448E 00	-6.900E 02	-6.960E 02	-4.639E 02	-2.320E 02	1.362E 03	5.240E 01	7.327E-02	1.060E 01	1.482E-02
4.134E 01	2.235E 01	4.459E 00	-6.961E 02	-7.031E 02	-4.673E 02	-2.357E 02	1.369E 03	5.327E 01	7.448E-02	1.063E 01	1.486E-02
4.150E 01	2.321E 01	4.971E 00	-7.109E 02	-7.202E 02	-4.757E 02	-2.445E 02	1.388E 03	5.534E 01	7.738E-02	1.185E 01	1.657E-02
4.246E 01	1.481E 01	8.135E 00	-7.643E 02	-8.331E 02	-5.309E 02	-3.022E 02	1.503E 03	3.531E 01	4.938E-02	1.939E 01	2.712E-02
4.406E 01	1.911E 01	1.342E 01	-7.919E 02	-1.036E 03	-6.274E 02	-4.087E 02	1.697E 03	4.555E 01	6.369E-02	3.200E 01	4.475E-02
4.431E 01	1.976E 01	1.387E 01	-7.967E 02	-1.067E 03	-6.420E 02	-4.248E 02	1.727E 03	4.711E 01	6.588E-02	3.306E 01	4.622E-02
4.478E 01	2.102E 01	1.472E 01	-8.063E 02	-1.120E 03	-6.700E 02	-4.501E 02	1.784E 03	5.011E 01	7.007E-02	3.508E 01	4.905E-02
4.480E 01	2.107E 01	1.475E 01	-8.066E 02	-1.122E 03	-6.712E 02	-4.510E 02	1.786E 03	5.024E 01	7.025E-02	3.517E 01	4.917E-02
4.625E 01	1.906E 01	1.737E 01	-7.969E 02	-1.254E 03	-7.555E 02	-4.989E 02	1.965E 03	4.544E 01	6.353E-02	4.141E 01	5.790E-02
4.626E 01	1.905E 01	1.739E 01	-7.967E 02	-1.255E 03	-7.561E 02	-4.992E 02	1.966E 03	4.540E 01	6.349E-02	4.145E 01	5.796E-02
4.730E 01	1.759E 01	1.927E 01	-7.818E 02	-1.336E 03	-8.146E 02	-5.212E 02	2.095E 03	4.194E 01	5.865E-02	4.595E 01	6.425E-02
4.731E 01	1.759E 01	1.927E 01	-7.529E 02	-1.336E 03	-8.149E 02	-5.213E 02	2.096E 03	4.193E 01	5.863E-02	4.594E 01	6.424E-02
4.811E 01	2.111E 01	1.868E 01	-7.062E 02	-1.397E 03	-8.585E 02	-5.387E 02	2.196E 03	5.033E 01	7.038E-02	4.453E 01	6.227E-02
4.874E 01	1.821E 01	1.821E 01	-6.517E 02	-1.445E 03	-8.924E 02	-5.531E 02	2.275E 03	4.341E 01	6.070E-02	4.341E 01	6.070E-02
4.875E 01	1.820E 01	1.820E 01	-6.508E 02	-1.446E 03	-8.929E 02	-5.533E 02	2.276E 03	4.340E 01	6.068E-02	4.340E 01	6.068E-02
4.928E 01	1.781E 01	1.781E 01	-6.010E 02	-1.486E 03	-9.207E 02	-5.658E 02	2.343E 03	4.246E 01	5.937E-02	4.246E 01	5.937E-02
5.069E 01	1.819E 01	1.819E 01	-4.679E 02	-1.592E 03	-9.924E 02	-5.996E 02	2.521E 03	4.336E 01	6.063E-02	4.336E 01	6.063E-02
5.279E 01	1.650E 01	1.650E 01	-2.770E 02	-1.750E 03	-1.093E 03	-6.564E 02	2.787E 03	3.933E 01	5.500E-02	3.933E 01	5.500E-02
5.329E 01	1.587E 01	1.587E 01	-2.349E 02	-1.788E 03	-1.116E 03	-6.722E 02	2.851E 03	3.782E 01	5.289E-02	3.782E 01	5.289E-02
5.404E 01	1.626E 01	1.626E 01	-1.728E 02	-1.850E 03	-1.150E 03	-7.000E 02	2.946E 03	3.875E 01	5.419E-02	3.875E 01	5.419E-02
5.480E 01	1.665E 01	1.665E 01	-1.090E 02	-1.918E 03	-1.183E 03	-7.341E 02	3.044E 03	3.969E 01	5.550E-02	3.969E 01	5.550E-02
5.576E 01	1.518E 01	1.518E 01	-3.279E 01	-2.010E 03	-1.224E 03	-7.858E 02	3.167E 03	3.618E 01	5.060E-02	3.618E 01	5.060E-02
5.623E 01	1.445E 01	1.448E 01	2.090E 02	-2.056E 03	-1.241E 03	-8.148E 02	3.209E 03	3.446E 01	4.818E-02	3.446E 01	4.818E-02
5.628E 01	1.300E 01	1.437E 01	2.131E 02	-2.061E 03	-1.243E 03	-8.184E 02	3.217E 03	3.099E 01	4.333E-02	3.426E 01	4.790E-02
5.642E 01	1.300E 01	1.415E 01	2.224E 02	-2.075E 03	-1.247E 03	-8.274E 02	3.234E 03	3.099E 01	4.333E-02	3.374E 01	4.718E-02
5.650E 01	1.403E 01	1.403E 01	2.281E 02	-2.082E 03	-1.250E 03	-8.326E 02	3.245E 03	3.345E 01	4.677E-02	3.345E 01	4.677E-02
5.678E 01	1.360E 01	1.360E 01	2.461E 02	-2.109E 03	-1.259E 03	-8.504E 02	3.280E 03	3.242E 01	4.533E-02	3.242E 01	4.533E-02
5.701E 01	1.436E 01	1.436E 01	2.597E 02	-2.130E 03	-1.265E 03	-8.646E 02	3.309E 03	3.424E 01	4.787E-02	3.424E 01	4.787E-02
5.773E 01	1.680E 01	1.680E 01	3.020E 02	-2.196E 03	-1.287E 03	-9.095E 02	3.402E 03	4.005E 01	5.600E-02	4.005E 01	5.600E-02
5.875E 01	1.969E 01	1.969E 01	3.442E 02	-2.286E 03	-1.315E 03	-9.707E 02	3.532E 03	4.693E 01	6.563E-02	4.693E 01	6.563E-02
6.076E 01	2.002E 01	2.002E 01	3.489E 02	-2.458E 03	-1.368E 03	-1.090E 03	3.790E 03	4.774E 01	6.675E-02	4.774E 01	6.675E-02
6.218E 01	1.903E 01	1.903E 01	3.489E 02	-2.576E 03	-1.408E 03	-1.168E 03	3.972E 03	4.537E 01	6.344E-02	4.537E 01	6.344E-02
6.465E 01	1.539E 01	1.539E 01	3.489E 02	-2.792E 03	-1.493E 03	-1.299E 03	4.289E 03	3.668E 01	5.129E-02	3.668E 01	5.129E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OR	CAWALL	P-IB/PS0	P-IB/PT0	P-OR/PS0	P-OB/PT0
6.502E 01	1.417E 01	1.483E 01	3.489E 02	-2.827E 03	-1.508E 03	-1.319E 03	4.337E 03	3.379E 01	4.725E-02	3.535E 01	4.943E-02
6.506E 01	1.417E 01	1.477E 01	3.489E 02	-2.830E 03	-1.509E 03	-1.321E 03	4.342E 03	3.379E 01	4.725E-02	3.521E 01	4.924E-02
6.526E 01	1.332E 01	1.447E 01	3.489E 02	-2.848E 03	-1.517E 03	-1.331E 03	4.368E 03	3.175E 01	4.440E-02	3.451E 01	4.825E-02
6.692E 01	6.212E 00	6.137E 00	4.612E 02	-2.965E 03	-1.569E 03	-1.396E 03	4.583E 03	1.481E 01	2.071E-02	1.463E 01	2.046E-02
6.759E 01	4.690E 00	5.677E 00	5.761E 02	-3.000E 03	-1.584E 03	-1.416E 03	4.665E 03	1.118E 01	1.563E-02	1.353E 01	1.893E-02
6.836E 01	2.940E 00	4.490E 00	6.974E 02	-3.036E 03	-1.597E 03	-1.439E 03	4.760E 03	7.009E 00	9.800E-03	1.070E 01	1.497E-02
6.908E 01	2.461E 00	3.380E 00	7.820E 02	-3.071E 03	-1.608E 03	-1.463E 03	4.848E 03	5.866E 00	8.203E-03	8.057E 00	1.127E-02
6.969E 01	2.055E 00	2.592E 00	8.385E 02	-3.099E 03	-1.616E 03	-1.484E 03	4.922E 03	4.899E 00	6.850E-03	6.179E 00	8.640E-03
7.064E 01	1.611E 00	1.365E 00	8.995E 02	-3.138E 03	-1.627E 03	-1.511E 03	5.036E 03	3.840E 00	5.370E-03	3.254E 00	4.550E-03
7.107E 01	1.410E 00	1.399E 00	9.203E 02	-3.153E 03	-1.632E 03	-1.521E 03	5.088E 03	3.361E 00	4.700E-03	3.335E 00	4.663E-03
7.260E 01	2.170E 00	1.520E 00	9.997E 02	-3.199E 03	-1.648E 03	-1.551E 03	5.273E 03	5.174E 00	7.235E-03	3.623E 00	5.067E-03
7.275E 01	2.245E 00	1.359E 00	1.008E 03	-3.203E 03	-1.649E 03	-1.554E 03	5.290E 03	5.352E 00	7.483E-03	3.240E 00	4.531E-03
7.350E 01	1.913E 00	5.550E-01	1.055E 03	-3.224E 03	-1.655E 03	-1.569E 03	5.374E 03	4.561E 00	6.378E-03	1.323E 00	1.850E-03
7.351E 01	1.911E 00	5.507E-01	1.056E 03	-3.224E 03	-1.655E 03	-1.569E 03	5.375E 03	4.557E 00	6.372E-03	1.313E 00	1.836E-03
7.483E 01	1.325E 00	0.000	1.090E 03	-3.265E 03	-1.664E 03	-1.601E 03	5.427E 03	3.159E 00	4.417E-03	0.000	0.000
7.768E 01	1.370E 00	0.000	1.144E 03	-3.216E 03	-1.678E 03	-1.53AE 03	5.525E 03	3.266E 00	4.567E-03	0.000	0.000
8.158E 01	9.050E-01	0.000	1.193E 03	-3.229E 03	-1.691E 03	-1.53AE 03	5.630E 03	2.157E 00	3.017E-03	0.000	0.000
8.439E 01	9.200E-01	0.000	1.213E 03	-3.238E 03	-1.701E 03	-1.53AE 03	5.684E 03	2.193E 00	3.067E-03	0.000	0.000
8.725E 01	1.200E 00	0.000	1.238E 03	-3.255E 03	-1.717E 03	-1.53AE 03	5.707E 03	2.861E 00	4.000E-03	0.000	0.000
8.726E 01	1.201E 00	0.000	1.238E 03	-3.255E 03	-1.717E 03	-1.53AE 03	5.707E 03	2.862E 00	4.002E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.551E 01	9.551E 01	2.600E-03	3.467E-02
4.041E 01	1.278E-01	9.564E 01	2.614E-03	3.725E-02
4.128E 01	1.095E 01	1.066E 02	2.732E-03	3.949E-02
4.134E 01	8.138E-01	1.074E 02	2.741E-03	3.967E-02
4.150E 01	1.937E 00	1.093E 02	2.762E-03	4.012E-02
4.246E 01	1.179E 01	1.211E 02	2.836E-03	4.106E-02
4.406E 01	1.896E 01	1.401E 02	2.872E-03	4.029E-02
4.431E 01	2.811E 00	1.429E 02	2.881E-03	4.033E-02
4.478E 01	5.369E 00	1.483E 02	2.901E-03	4.047E-02
4.480E 01	2.292E-01	1.485E 02	2.902E-03	4.046E-02
4.625E 01	1.761E 01	1.661E 02	3.443E-03	3.318E-02
4.626E 01	1.231E-01	1.662E 02	3.058E-03	3.811E-02
4.730E 01	1.131E 01	1.775E 02	2.960E-03	3.878E-02
4.731E 01	5.894E-02	1.776E 02	2.950E-03	3.894E-02
4.811E 01	7.774E 00	1.854E 02	2.934E-03	3.992E-02
4.874E 01	6.139E 00	1.915E 02	3.403E-03	3.320E-02
4.875E 01	9.505E-02	1.916E 02	3.023E-03	3.815E-02
4.928E 01	4.525E 00	1.961E 02	2.920E-03	3.828E-02
5.069E 01	1.046E 01	2.066E 02	2.846E-03	3.773E-02
5.279E 01	1.337E 01	2.200E 02	2.958E-03	3.232E-02
5.329E 01	3.046E 00	2.230E 02	3.105E-03	2.958E-02
5.404E 01	4.484E 00	2.275E 02	3.123E-03	2.908E-02
5.480E 01	4.288E 00	2.318E 02	3.183E-03	2.812E-02
5.576E 01	5.242E 00	2.370E 02	3.200E-03	2.626E-02
5.623E 01	1.651E 00	2.387E 02	3.156E-03	2.410E-02
5.628E 01	2.556E-01	2.389E 02	3.395E-03	2.157E-02
5.642E 01	6.766E-01	2.396E 02	3.381E-03	2.157E-02
5.650E 01	3.941E-01	2.400E 02	3.479E-03	2.117E-02
5.678E 01	1.386E 00	2.414E 02	3.374E-03	2.166E-02
5.701E 01	1.099E 00	2.425E 02	3.384E-03	2.202E-02
5.773E 01	3.301E 00	2.458E 02	3.437E-03	2.250E-02
5.875E 01	4.141E 00	2.499E 02	3.529E-03	2.214E-02
6.076E 01	7.794E 00	2.577E 02	3.497E-03	2.281E-02
6.218E 01	5.875E 00	2.636E 02	3.456E-03	2.336E-02
6.465E 01	1.102E 01	2.746E 02	3.449E-03	2.167E-02
6.502E 01	1.677E 00	2.763E 02	3.485E-03	2.045E-02
6.506E 01	1.734E-01	2.765E 02	3.544E-03	2.082E-02
6.526E 01	8.846E-01	2.774E 02	3.533E-03	2.065E-02
6.692E 01	7.593E 00	2.849E 02	3.362E-03	1.430E-02
6.759E 01	2.821E 00	2.878E 02	3.332E-03	1.286E-02
6.836E 01	2.992E 00	2.908E 02	3.276E-03	1.037E-02
6.908E 01	2.461E 00	2.932E 02	3.234E-03	8.793E-03
6.969E 01	1.852E 00	2.951E 02	3.199E-03	7.488E-03
7.064E 01	2.406E 00	2.975E 02	3.131E-03	5.420E-03
7.107E 01	9.463E-01	2.984E 02	3.121E-03	5.190E-03
7.260E 01	3.564E 00	3.020E 02	3.154E-03	6.321E-03
7.275E 01	3.565E-01	3.023E 02	3.150E-03	6.212E-03
7.350E 01	1.565E 00	3.039E 02	3.091E-03	4.695E-03
7.351E 01	2.674E-03	3.039E 02	3.091E-03	4.686E-03
7.483E 01	8.737E-01	3.048E 02	3.094E-03	4.937E-03
7.768E 01	1.700E 00	3.065E 02	3.084E-03	5.035E-03
8.158E 01	1.621E 00	3.081E 02	3.004E-03	3.662E-03
8.439E 01	7.390E-01	3.088E 02	2.993E-03	3.690E-03
8.725E 01	3.341E-01	3.092E 02	3.018E-03	4.487E-03
8.726E 01	0.000	3.092E 02	3.018E-03	4.488E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	837.	(LBF)
MEASURED THRUST	800.	(LBF)
CALCULATED SPECIFIC IMPULSE	1941.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1856.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4296	
MEASURED THRUST COEFFICIENT	0.4106	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4433.	(LBF)
NET THRUST	932.	(LBF)
SPECIFIC IMPULSE	2162.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.4783	

MOMENTUM AND FORCES

INLET FRICTION DRAG	95.5	(LBF)
INLET MOMENTUM CHANGE	-707.7	(LBF)
COMBUSTOR FRICTION DRAG	180.8	(LBF)
COMBUSTOR STRUT DRAG	37.09	(LBF)
COMBUSTOR MOMENTUM CHANGE	688.	(LBF)
NOZZLE FRICTION DRAG	32.89	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	857.	(LBF)
NOZZLE PRESSURE INTEGRAL	890.	(LBF)
EXTERNAL FRICTION DRAG	42.02	(LBF)
EXTERNAL PRESSURE INTEGRAL	-944.	(LBF)
TOTAL EXTERNAL DRAG	-986.	(LBF)
TOTAL STRUT DRAG	37.09	(LBF)
CAVITY FORCE	-1329.	(LBF)
CALCULATED LOAD CELL FORCE	-1478.	(LBF)
MEASURED LOAD CELL FORCE	-1515.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-147.3, -118.8,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2849	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	87.261	(IN)
STRUT LEADING EDGE	56.425	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	65.025	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8655	
ADDITIVE DRAG COEFFICIENT	0.6110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2558	
DELTA PT2	0.6922	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4054	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2603	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8971	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9133	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9054	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8733	
ENTHALPY AT P0 - SUPERSONIC	27.30	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	48.36	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0226
EQUIVALENCE RATIO	0.704
COMBUSTOR EFFICIENCY	0.812
TOTAL PRESSURE RATIO	0.2232
COMBUSTOR EFFECTIVENESS	0.7724
INJECTOR DISCHARGE COEFFICIENTS	0.9529, 0.7871,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9590
NOZZLE COEFFICIENT - CT	0.8829
PROCESS EFFICIENCY	0.9123
KINETIC ENERGY EFFICIENCY	0.9088

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.270	
1C	44.300	
2A	48.745	D
2C	46.250	E
3A	54.035	
3B	56.220	
4	44.770	

Reading 95

t = 228.55 sec.

READING = 0095 BLOCK = 142 TIME = 228.549 MACH 5.2 PT = 300.250 TT = 2944.3 PAGE 1

RAMJET PERFORMANCE

2-10-75

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MUPIM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	300.250	2944	653.2(779)	1.2949	28.919	2560											
0.000	0.384	513	-5.7(123)	1.3988	28.919	1111	5.170	5742	1.885	0.08037	17.816	0.8655	3265	7.172	183.2		
SPIKE TIP NS		2	0 7														
0.600	14.350	2944	653.2(779)	1.2947	28.919	2560											
0.600	13.131	2885	635.4(761)	1.2966	28.919	2536	0.372	944	2.093	0.08037	17.816	0.8655	3433	1.179	192.7		
WIND TUNNEL		3	0 0														
0.000	300.250	2944	653.2(779)	1.2949	28.919	2560											
0.000	0.420	526	-2.5(127)	1.3987	28.919	1125	5.092	5728	1.885	0.08552	18.958	0.8655	3468	7.612	182.9		
SPIKE TIP NS		4	0 0														
0.600	14.350	2944	653.2(779)	1.2947	28.919	2560											
0.600	12.946	2876	632.6(759)	1.2969	28.919	2532	0.401	1015	2.093	0.08552	18.958	0.8655	3468	1.349	182.9		
INLET THROAT		5	0 4														
40.400	121.135	2840	621.7(748)	1.2982	28.919	2517											
40.400	13.604	1673	289.0(418)	1.3393	28.919	1963	2.079	4081	1.936	0.62060	18.958	0.1120	2795	41.889	147.4		
INLET UPNNSK		6	0 3														
40.400	121.135	2840	621.7(748)	1.2982	28.919	2517											
40.400	12.843	1649	282.4(411)	1.3405	28.919	1950	2.114	4121	1.936	0.60051	18.958	0.1233	2833	38.455	149.5		
INLET DNNRSK		7	0 4														
40.400	78.125	2840	621.7(748)	1.2982	28.919	2517											
40.400	64.539	2717	589.2(712)	1.3021	28.919	2466	0.548	1351	1.966	0.60051	18.958	0.1233	2833	12.607	149.5		
COMBUSTOR	0	8	1 21														
40.410	101.275	2805	626.9(777)	1.3007	27.388	2573											
40.410	11.017	1634	276.6(429)	1.3430	27.388	1996	2.098	4187	2.036	0.66338	19.041	0.1121	2794	43.161	146.7	0.14	0.07
COMBUSTOR	0	9	2 21														
41.270	88.632	2723	624.8(776)	1.3048	26.492	2582											
41.270	13.961	1780	324.5(478)	1.3391	26.492	2097	1.848	3877	2.093	0.66723	19.091	0.1117	2700	40.199	141.4	0.22	0.03
COMBUSTOR	0	10	3 21														
41.280	87.918	2689	624.8(766)	1.3064	26.455	2569											
41.280	13.995	1715	325.0(468)	1.3410	26.455	2079	1.863	3873	2.087	0.66710	19.091	0.1117	2699	40.153	141.4	0.22	0.01
COMBUSTOR	0	11	4 21														
41.345	87.376	2682	624.4(764)	1.3067	26.450	2567											
41.345	14.217	1720	328.1(469)	1.3408	26.450	2082	1.849	3850	2.087	0.66747	19.091	0.1117	2691	39.937	141.0	0.22	0.00
COMBUSTOR	0	12	5 21														
41.500	86.326	2679	623.5(763)	1.3068	26.449	2565											
41.500	15.873	1772	343.7(484)	1.3386	26.449	2111	1.772	3742	2.087	0.66845	19.091	0.1115	2674	38.871	140.0	0.22	0.00
COMBUSTOR	0	13	6 21														
42.460	74.508	2832	617.3(808)	1.2995	26.630	2621											
42.460	19.097	2047	371.3(565)	1.3262	26.630	2251	1.599	3509	2.112	0.66188	19.091	0.1126	2633	36.089	137.9	0.22	0.15
COMBUSTOR	0	14	7 4														
44.065	72.335	3170	604.6(911)	1.2831	27.042	2735											
44.065	37.144	2728	460.4(770)	1.2980	27.043	2552	1.053	2686	2.137	0.64002	19.091	0.1165	2702	26.719	141.5	0.22	0.48
COMBUSTOR	0	15	8 3														
44.310	72.461	3204	602.4(921)	1.2813	27.088	2745											
44.310	37.669	2767	459.3(782)	1.2962	27.090	2566	1.043	2676	2.139	0.63847	19.091	0.1167	2714	26.550	142.2	0.22	0.52
COMBUSTOR	0	16	9 3														
44.780	72.624	3255	597.4(936)	1.2786	27.163	2760											
44.780	38.676	2830	457.3(800)	1.2932	27.165	2588	1.025	2647	2.141	0.63600	19.091	0.1172	2732	26.166	143.1	0.22	0.57
COMBUSTOR	0	17	10 2														
44.800	72.602	3257	597.2(937)	1.2785	27.166	2761											
44.800	38.719	2833	457.3(801)	1.2931	27.168	2589	1.022	2645	2.141	0.63566	19.091	0.1173	2733	26.132	143.1	0.22	0.58
COMBUSTOR	0	18	11 6														
46.250	69.783	2982	592.5(941)	1.2933	24.307	2808											
46.250	35.323	2548	438.9(789)	1.3079	24.308	2610	1.062	2773	2.306	0.60472	19.271	0.1244	2766	26.056	144.6	0.52	0.24

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	69.767	2983	592.4(941)	1.2932	24.309	2809											
46.260	35.300	2548	438.6(790)	1.3078	24.309	2611	1.062	2774	2.306	0.60443	19.271	0.1245	2787	26.055	144.6	0.52	0.24
COMBUSTOR	0	20	13 4														
47.305	66.850	3165	579.0(1002)	1.2840	24.528	2870											
47.305	32.853	2696	410.6(837)	1.3000	24.530	2665	1.089	2903	2.322	0.56150	19.271	0.1340	2866	25.329	148.7	0.52	0.33
COMBUSTOR	0	21	14 2														
47.310	66.929	3160	578.9(1000)	1.2843	24.523	2868											
47.310	32.838	2690	410.4(835)	1.3003	24.524	2663	1.090	2903	2.321	0.56251	19.271	0.1338	2864	25.381	148.6	0.52	0.33
COMBUSTOR	0	22	15 4														
48.110	63.778	3330	569.8(1057)	1.2755	24.723	2923											
48.110	32.023	2860	398.7(891)	1.2919	24.726	2726	1.074	2926	2.336	0.52428	19.271	0.1435	2930	23.842	152.0	0.52	0.41
COMBUSTOR	0	23	16 6														
48.745	60.784	2997	578.8(1038)	1.2936	22.144	2950											
48.745	26.418	2470	374.9(837)	1.3115	22.145	2697	1.185	3194	2.500	0.48962	19.463	0.1552	2982	24.305	153.2	0.84	0.22
COMBUSTOR	0	24	17 2														
48.755	60.744	3000	578.8(1038)	1.2935	22.146	2951											
48.755	26.372	2471	374.5(837)	1.3114	22.147	2697	1.185	3197	2.501	0.48899	19.463	0.1554	2984	24.295	153.3	0.84	0.22
COMBUSTOR	0	25	18 4														
49.285	58.657	3107	575.2(1078)	1.2882	22.252	2991											
49.285	23.950	2530	350.4(857)	1.3079	22.253	2719	1.234	3354	2.513	0.45732	19.463	0.1662	3048	23.838	156.6	0.84	0.25
COMBUSTOR	0	26	19 4														
50.695	53.792	3363	566.9(1172)	1.2792	22.508	3078											
50.695	19.575	2684	297.9(910)	1.2990	22.512	2775	1.322	3669	2.539	0.38976	19.463	0.1950	3197	22.222	164.3	0.84	0.33
COMBUSTOR	0	27	20 5														
52.795	46.173	3808	551.9(1345)	1.2492	22.862	3216											
52.795	18.150	3137	270.7(1080)	1.2762	22.879	2950	1.272	3751	2.590	0.32132	19.577	0.2379	3388	18.730	173.1	0.85	0.47
COMBUSTOR	0	28	21 4														
53.295	47.443	3702	549.5(1305)	1.2556	22.762	3186											
53.295	14.733	2885	214.4(984)	1.2869	22.776	2847	1.438	4094	2.581	0.30819	19.577	0.2480	3427	19.609	175.1	0.85	0.44
COMBUSTOR	0	29	22 4														
54.045	45.325	3828	545.9(1352)	1.2477	22.897	3220											
54.045	14.220	3005	203.3(1028)	1.2806	22.916	2889	1.433	4140	2.592	0.29051	19.577	0.2631	3477	18.690	177.6	0.85	0.48
COMBUSTOR	0	30	23 4														
54.805	43.486	3945	542.4(1397)	1.2397	23.025	3250											
54.805	13.700	3117	191.5(1069)	1.2745	23.054	2927	1.432	4190	2.601	0.27472	19.577	0.2782	3526	17.889	180.1	0.85	0.52
COMBUSTOR	0	31	24 4														
55.760	41.677	4065	538.0(1442)	1.2310	23.161	3278											
55.760	12.928	3221	173.2(1106)	1.2684	23.201	2959	1.444	4272	2.610	0.25744	19.577	0.2969	3583	17.093	183.0	0.85	0.57
COMBUSTOR	0	32	25 5														
56.230	33.843	4611	536.1(1651)	1.1847	23.757	3381											
56.230	12.548	3930	182.9(1372)	1.2207	23.917	3158	1.331	4204	2.649	0.20777	19.577	0.3679	3740	13.574	191.1	0.85	0.78
COMBUSTOR	0	33	26 5														
56.285	36.309	4345	535.8(1549)	1.2082	23.466	3335											
56.285	10.252	3440	120.3(1185)	1.2535	23.557	3017	1.511	4560	2.634	0.20715	19.577	0.3690	3744	14.680	191.2	0.85	0.67
COMBUSTOR	0	34	27 3														
56.425	36.156	4361	535.3(1585)	1.2069	23.484	3338											
56.425	10.195	3456	118.0(1191)	1.2525	23.578	3021	1.513	4570	2.635	0.20569	19.577	0.3716	3751	14.607	191.6	0.85	0.67
COMBUSTOR	0	35	28 21														
56.505	31.627	4999	535.0(1801)	1.1502	24.192	3438											
56.505	12.326	4464	171.5(1575)	1.1669	24.550	3248	1.313	4265	2.659	0.20803	19.577	0.3674	3755	13.789	191.8	0.85	1.00
COMBUSTOR	0	36	29 21														
56.785	31.807	4999	534.0(1801)	1.1503	24.194	3438											
56.785	12.100	4449	161.8(1569)	1.1677	24.559	3243	1.331	4315	2.659	0.20727	19.577	0.3688	3769	13.900	192.5	0.85	1.00
COMBUSTOR	0	37	30 21														
57.011	32.009	4999	533.2(1801)	1.1504	24.196	3438											
57.011	12.076	4443	158.1(1567)	1.1681	24.563	3241	1.337	4332	2.658	0.20696	19.577	0.3693	3778	13.934	193.0	0.85	1.00

READING = 0095 BLOCK # 142 TIME = 228.549 MACH 5.2 PI = 300.250 TT = 2944.3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
57.735	32.218	4997	531.0(1800)	1.1506	24.200	3437											
57.735	12.000	4433	151.5(1562)	1.1688	24.569	3238	1.346	4358	2.657	0.20367	19.577	0.3753	3805	13.793	194.4	0.85	1.00
COMBUSTOR	0	39	32 200														
58.755	32.753	4996	527.7(1799)	1.1509	24.207	3436											
58.755	17.850	4651	288.6(1653)	1.1600	24.449	3312	1.044	3459	2.655	0.20238	19.577	0.3777	3831	10.879	195.7	0.85	1.00
COMBUSTOR	0	40	33 200														
60.765	33.659	4991	520.6(1797)	1.1515	24.220	3435											
60.765	19.500	4680	305.1(1665)	1.1596	24.438	3323	0.988	3284	2.651	0.20942	19.577	0.3650	3821	10.689	195.2	0.85	1.00
COMBUSTOR	0	41	34 21														
62.185	34.552	4989	515.6(1796)	1.1520	24.230	3434											
62.185	15.694	4535	209.3(1604)	1.1658	24.529	3273	1.196	3915	2.648	0.21509	19.577	0.3553	3810	13.086	194.6	0.85	1.00
COMBUSTOR	0	42	35 21														
64.649	32.411	4971	506.0(1788)	1.1519	24.235	3427											
64.649	15.169	4536	211.9(1605)	1.1651	24.523	3273	1.172	3836	2.652	0.20388	19.577	0.3749	3791	12.156	193.6	0.85	1.00
COMBUSTOR	0	43	36 200														
65.025	30.103	4960	504.4(1784)	1.1513	24.228	3423											
65.025	14.932	4562	232.1(1616)	1.1630	24.499	3281	1.125	3691	2.657	0.18955	19.577	0.4032	3768	10.872	193.5	0.85	1.00
COMBUSTOR REGEN	44	37	4														
65.025	30.103	5078	617.1(1836)	1.1463	24.066	3468											
65.025	15.623	4719	353.4(1683)	1.1537	24.353	3334	1.090	3633	2.680	0.18955	19.577	0.4032	3824	10.701	195.3	0.85	1.00
NOZZLE AE	45	38	4														
87.261	30.103	4960	504.4(1722)	1.1513	24.228	3423											
87.261	0.944	2850	-591.3(934)	1.2626	24.853	2683	2.760	7404	2.657	0.03946	19.577	1.9372	4974	4.540	254.1	0.85	1.00
NOZZLE PO	46	39	4														
87.261	30.103	4960	504.4(1722)	1.1513	24.228	3423											
87.261	0.420	2398	-761.0(766)	1.2796	24.855	2477	3.212	7957	2.657	0.02241	19.577	3.4103	5209	2.772	266.1	0.85	1.00
NOZZLE AE REGEN	47	40	4														
87.261	30.103	5078	617.1(1836)	1.1463	24.066	3468											
87.261	0.996	3051	-512.6(1011)	1.2533	24.849	2766	2.718	7518	2.680	0.03945	19.577	1.9373	5069	4.610	258.9	0.85	1.00
NOZZLE PO REGEN	48	41	4														
87.261	30.103	5078	617.1(1836)	1.1463	24.066	3468											
87.261	0.420	2548	-705.6(821)	1.2740	24.855	2548	3.193	8135	2.680	0.02156	19.577	3.5450	5331	2.726	272.3	0.85	1.00
FICTIVE COMBUSTR	68	61	0														
65.025	121.135	5110	504.4(1843)	1.1651	24.397	3483											
65.025	0.420	1736	-994.7(533)	1.3084	24.856	2131	4.064	8661	2.544	0.03370	19.577	2.2681	5514	4.536	281.7	0.85	1.00
FICTIVE NOZZLE	69	62	0														
87.261	17.252	4870	480.1(1748)	1.1472	24.190	3389											
87.261	1.230	3326	-400.3(1117)	1.2372	24.835	2870	2.313	6637	2.698	0.03946	19.577	1.9371	4649	4.070	237.5	0.85	1.00

XABS	P-IB	P-OB	PDA	QOX	W-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.981E-01	1.060E 00	0.000	-3.518E-01	0.000	0.000	0.000	2.470E-02	2.525E 00	3.530E-03	0.000	0.000
1.836E 01	1.060E 00	0.000	-3.520E 01	0.000	0.000	0.000	1.634E 02	2.525E 00	3.530E-03	0.000	0.000
3.070E 01	1.845E 00	0.000	-1.530E 02	0.000	0.000	0.000	5.053E 02	4.394E 00	6.145E-03	0.000	0.000
3.508E 01	3.061E 00	0.000	-3.119E 02	0.000	0.000	0.000	6.804E 02	7.290E 00	1.019E-02	0.000	0.000
3.516E 01	3.080E 00	4.354E 00	-3.596E 02	0.000	0.000	0.000	6.841E 02	7.336E 00	1.026E-02	1.037E 01	1.450E-02
3.517E 01	3.081E 00	4.339E 00	-3.596E 02	0.000	0.000	0.000	6.843E 02	7.339E 00	1.026E-02	1.033E 01	1.445E-02
3.555E 01	3.170E 00	3.372E 00	-3.657E 02	0.000	0.000	0.000	7.225E 02	7.550E 00	1.056E-02	8.032E 00	1.123E-02
3.583E 01	3.156E 00	2.650E 00	-3.741E 02	-2.713E 02	-2.713E 02	0.000	7.515E 02	7.517E 00	1.051E-02	6.312E 00	8.826E-03
3.606E 01	3.145E 00	3.637E 00	-3.809E 02	-2.748E 02	-2.748E 02	0.000	7.745E 02	7.491E 00	1.047E-02	8.662E 00	1.211E-02
3.648E 01	3.531E 00	5.478E 00	-3.903E 02	-2.815E 02	-2.815E 02	0.000	8.183E 02	8.409E 00	1.176E-02	1.305E 01	1.824E-02
3.701E 01	3.330E 00	7.801E 00	-4.016E 02	-3.371E 02	-2.904E 02	-4.673E 01	8.743E 02	7.931E 00	1.109E-02	1.858E 01	2.598E-02
3.729E 01	4.262E 00	9.050E 00	-4.077E 02	-3.561E 02	-2.954E 02	-6.072E 01	9.048E 02	1.015E 01	1.420E-02	2.155E 01	3.014E-02
3.803E 01	6.667E 00	1.083E 01	-4.478E 02	-4.052E 02	-3.089E 02	-9.622E 01	9.851E 02	1.588E 01	2.221E-02	2.580E 01	3.608E-02
3.831E 01	8.683E 00	1.152E 01	-4.670E 02	-4.247E 02	-3.148E 02	-1.099E 02	1.017E 03	2.068E 01	2.892E-02	2.745E 01	3.838E-02
3.875E 01	1.176E 01	1.180E 01	-5.023E 02	-4.563E 02	-3.256E 02	-1.307E 02	1.066E 03	2.801E 01	3.917E-02	2.811E 01	3.931E-02
3.878E 01	1.201E 01	1.182E 01	-5.050E 02	-4.589E 02	-3.265E 02	-1.324E 02	1.070E 03	2.860E 01	3.999E-02	2.816E 01	3.938E-02
3.901E 01	1.360E 01	1.261E 01	-5.209E 02	-4.762E 02	-3.330E 02	-1.431E 02	1.096E 03	3.239E 01	4.530E-02	3.004E 01	4.201E-02
3.929E 01	1.337E 01	1.361E 01	-5.370E 02	-4.989E 02	-3.422E 02	-1.567E 02	1.129E 03	3.186E 01	4.455E-02	3.242E 01	4.534E-02
3.950E 01	1.321E 01	9.663E 00	-5.463E 02	-5.159E 02	-3.496E 02	-1.664E 02	1.152E 03	3.147E 01	4.401E-02	2.301E 01	3.218E-02
3.978E 01	1.424E 01	4.175E 00	-5.638E 02	-5.404E 02	-3.608E 02	-1.797E 02	1.185E 03	3.391E 01	4.742E-02	9.944E 00	1.391E-02
4.000E 01	1.501E 01	4.214E 00	-5.809E 02	-5.596E 02	-3.700E 02	-1.895E 02	1.211E 03	3.576E 01	5.000E-02	1.004E 01	1.403E-02
4.040E 01	1.768E 01	4.286E 00	-6.139E 02	-5.963E 02	-3.886E 02	-2.077E 02	1.257E 03	4.211E 01	5.888E-02	1.021E 01	1.427E-02
4.041E 01	1.775E 01	4.288E 00	-6.146E 02	-5.972E 02	-3.891E 02	-2.082E 02	1.259E 03	4.227E 01	5.910E-02	1.021E 01	1.428E-02
4.127E 01	2.348E 01	4.443E 00	-6.962E 02	-6.894E 02	-4.336E 02	-2.519E 02	1.360E 03	5.592E 01	7.820E-02	1.058E 01	1.480E-02
4.128E 01	2.355E 01	4.445E 00	-6.972E 02	-6.866E 02	-4.341E 02	-2.524E 02	1.362E 03	5.608E 01	7.842E-02	1.059E 01	1.480E-02
4.134E 01	2.398E 01	4.456E 00	-7.039E 02	-6.939E 02	-4.378E 02	-2.561E 02	1.369E 03	5.711E 01	7.986E-02	1.061E 01	1.484E-02
4.150E 01	2.501E 01	6.734E 00	-7.194E 02	-7.115E 02	-4.466E 02	-2.649E 02	1.388E 03	5.957E 01	8.331E-02	1.604E 01	2.243E-02
4.246E 01	1.736E 01	2.083E 01	-7.482E 02	-8.297E 02	-5.088E 02	-3.209E 02	1.503E 03	4.135E 01	5.781E-02	4.962E 01	6.938E-02
4.406E 01	2.989E 01	4.440E 01	-6.611E 02	-1.071E 03	-6.445E 02	-4.266E 02	1.697E 03	7.119E 01	9.954E-02	1.058E 02	1.479E-01
4.431E 01	3.180E 01	4.354E 01	-6.465E 02	-1.115E 03	-6.689E 02	-4.456E 02	1.727E 03	7.574E 01	1.059E-01	1.037E 02	1.450E-01
4.478E 01	3.547E 01	4.188E 01	-6.240E 02	-1.209E 03	-7.184E 02	-4.908E 02	1.784E 03	8.448E 01	1.181E-01	9.976E 01	1.395E-01
4.480E 01	3.562E 01	4.181E 01	-6.231E 02	-1.214E 03	-7.206E 02	-4.930E 02	1.786E 03	8.485E 01	1.187E-01	9.959E 01	1.393E-01
4.625E 01	3.394E 01	3.671E 01	-5.274E 02	-1.554E 03	-8.728E 02	-6.809E 02	1.965E 03	8.083E 01	1.130E-01	8.744E 01	1.223E-01
4.626E 01	3.392E 01	3.668E 01	-5.268E 02	-1.556E 03	-8.738E 02	-6.824E 02	1.966E 03	8.080E 01	1.130E-01	8.735E 01	1.222E-01
4.730E 01	3.271E 01	3.300E 01	-4.372E 02	-1.815E 03	-9.759E 02	-8.388E 02	2.095E 03	7.790E 01	1.089E-01	7.860E 01	1.099E-01
4.731E 01	3.270E 01	3.298E 01	-4.393E 02	-1.816E 03	-9.764E 02	-8.396E 02	2.096E 03	7.788E 01	1.089E-01	7.854E 01	1.098E-01
4.811E 01	3.472E 01	2.932E 01	-3.658E 02	-1.990E 03	-1.050E 03	-9.399E 02	2.196E 03	8.271E 01	1.157E-01	6.983E 01	9.765E-02
4.874E 01	2.642E 01	2.642E 01	-2.842E 02	-2.098E 03	-1.107E 03	-9.918E 02	2.275E 03	6.292E 01	8.799E-02	6.292E 01	8.799E-02
4.875E 01	2.637E 01	2.637E 01	-2.828E 02	-2.100E 03	-1.107E 03	-9.924E 02	2.276E 03	6.281E 01	8.784E-02	6.281E 01	8.784E-02
4.928E 01	2.395E 01	2.395E 01	-2.133E 02	-2.169E 03	-1.153E 03	-1.017E 03	2.343E 03	5.704E 01	7.977E-02	5.704E 01	7.977E-02
5.060E 01	1.957E 01	1.957E 01	-5.240E 01	-2.332E 03	-1.265E 03	-1.067E 03	2.521E 03	4.662E 01	6.520E-02	4.662E 01	6.520E-02
5.279E 01	1.815E 01	1.815E 01	1.553E 02	-2.561E 03	-1.411E 03	-1.150E 03	2.787E 03	4.323E 01	6.045E-02	4.323E 01	6.045E-02
5.329E 01	1.473E 01	1.473E 01	1.980E 02	-2.610E 03	-1.442E 03	-1.168E 03	2.851E 03	3.509E 01	4.907E-02	3.509E 01	4.907E-02
5.404E 01	1.422E 01	1.422E 01	2.540E 02	-2.680E 03	-1.487E 03	-1.193E 03	2.946E 03	3.387E 01	4.736E-02	3.387E 01	4.736E-02
5.480E 01	1.370E 01	1.370E 01	3.082E 02	-2.749E 03	-1.528E 03	-1.221E 03	3.044E 03	3.263E 01	4.563E-02	3.263E 01	4.563E-02
5.576E 01	1.293E 01	1.293E 01	3.719E 02	-2.833E 03	-1.576E 03	-1.257E 03	3.167E 03	3.079E 01	4.306E-02	3.079E 01	4.306E-02
5.623E 01	1.255E 01	1.255E 01	5.315E 02	-2.872E 03	-1.596E 03	-1.276E 03	3.209E 03	2.989E 01	4.179E-02	2.989E 01	4.179E-02
5.628E 01	8.000E 00	1.250E 01	5.350E 02	-2.876E 03	-1.598E 03	-1.278E 03	3.217E 03	1.905E 01	2.664E-02	2.978E 01	4.165E-02
5.642E 01	8.000E 00	1.239E 01	5.431E 02	-2.887E 03	-1.603E 03	-1.284E 03	3.234E 03	1.905E 01	2.664E-02	2.951E 01	4.127E-02
5.650E 01	1.233E 01	1.233E 01	5.481E 02	-2.893E 03	-1.605E 03	-1.287E 03	3.245E 03	2.936E 01	4.105E-02	2.936E 01	4.105E-02
5.678E 01	1.210E 01	1.210E 01	5.640E 02	-2.913E 03	-1.615E 03	-1.297E 03	3.280E 03	2.882E 01	4.030E-02	2.882E 01	4.030E-02
5.701E 01	1.208E 01	1.208E 01	5.758E 02	-2.928E 03	-1.622E 03	-1.305E 03	3.309E 03	2.876E 01	4.022E-02	2.876E 01	4.022E-02
5.773E 01	1.200E 01	1.200E 01	6.085E 02	-2.972E 03	-1.644E 03	-1.328E 03	3.402E 03	2.858E 01	3.997E-02	2.858E 01	3.997E-02
5.875E 01	1.785E 01	1.785E 01	6.430E 02	-3.035E 03	-1.670E 03	-1.365E 03	3.532E 03	4.251E 01	5.945E-02	4.251E 01	5.945E-02
6.076E 01	1.950E 01	1.950E 01	6.474E 02	-3.174E 03	-1.708E 03	-1.465E 03	3.790E 03	4.644E 01	6.495E-02	4.644E 01	6.495E-02
6.218E 01	1.569E 01	1.569E 01	6.474E 02	-3.273E 03	-1.735E 03	-1.538E 03	3.972E 03	3.730E 01	5.227E-02	3.730E 01	5.227E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PB0	P-IB/PT0	P-OB/PB0	P-OB/PT0
6.465E 01	1.517E 01	1.517E 01	6.474E 02	-3.461E 03	-1.803E 03	-1.658E 03	4.289E 03	3.613E 01	5.052E-02	3.613E 01	5.052E-02
6.502E 01	1.477E 01	1.509E 01	6.474E 02	-3.492E 03	-1.815E 03	-1.677E 03	4.337E 03	3.519E 01	4.921E-02	3.594E 01	5.025E-02
6.506E 01	1.477E 01	1.508E 01	6.474E 02	-3.495E 03	-1.817E 03	-1.679E 03	4.342E 03	3.519E 01	4.921E-02	3.592E 01	5.023E-02
6.526E 01	1.387E 01	1.504E 01	6.474E 02	-3.511E 03	-1.823E 03	-1.688E 03	4.368E 03	3.303E 01	4.618E-02	3.582E 01	5.008E-02
6.692E 01	6.325E 00	6.387E 00	7.639E 02	-3.620E 03	-1.868E 03	-1.752E 03	4.583E 03	1.506E 01	2.107E-02	1.521E 01	2.127E-02
6.759E 01	4.750E 00	6.142E 00	8.833E 02	-3.655E 03	-1.881E 03	-1.774E 03	4.665E 03	1.131E 01	1.582E-02	1.463E 01	2.046E-02
6.836E 01	2.940E 00	4.635E 00	1.009E 03	-3.693E 03	-1.892E 03	-1.801E 03	4.760E 03	7.002E 00	9.792E-03	1.104E 01	1.544E-02
6.908E 01	2.323E 00	3.225E 00	1.092E 03	-3.730E 03	-1.901E 03	-1.829E 03	4.848E 03	5.532E 00	7.736E-03	7.681E 00	1.074E-02
6.969E 01	1.800E 00	2.513E 00	1.145E 03	-3.760E 03	-1.907E 03	-1.853E 03	4.922E 03	4.287E 00	5.995E-03	5.986E 00	8.371E-03
7.064E 01	1.480E 00	1.405E 00	1.202E 03	-3.799E 03	-1.916E 03	-1.883E 03	5.036E 03	3.525E 00	4.929E-03	3.346E 00	4.679E-03
7.107E 01	1.335E 00	1.402E 00	1.222E 03	-3.814E 03	-1.920E 03	-1.894E 03	5.088E 03	3.180E 00	4.446E-03	3.339E 00	4.668E-03
7.260E 01	2.191E 00	1.390E 00	1.300E 03	-3.855E 03	-1.931E 03	-1.925E 03	5.273E 03	5.219E 00	7.298E-03	3.311E 00	4.629E-03
7.275E 01	2.275E 00	1.250E 00	1.308E 03	-3.859E 03	-1.932E 03	-1.927E 03	5.290E 03	5.419E 00	7.577E-03	2.977E 00	4.163E-03
7.350E 01	1.950E 00	5.500E-01	1.354E 03	-3.878E 03	-1.936E 03	-1.942E 03	5.374E 03	4.646E 00	6.496E-03	1.310E 00	1.832E-03
7.351E 01	1.949E 00	5.462E-01	1.355E 03	-3.879E 03	-1.936E 03	-1.942E 03	5.375E 03	4.641E 00	6.490E-03	1.301E 00	1.819E-03
7.483E 01	1.375E 00	0.000	1.390E 03	-3.916E 03	-1.943E 03	-1.973E 03	5.427E 03	3.275E 00	4.580E-03	0.000	0.000
7.768E 01	1.425E 00	0.000	1.446E 03	-3.928E 03	-1.955E 03	-1.973E 03	5.525E 03	3.394E 00	4.746E-03	0.000	0.000
8.158E 01	9.500E-01	0.000	1.497E 03	-3.940E 03	-1.967E 03	-1.973E 03	5.630E 03	2.263E 00	3.164E-03	0.000	0.000
8.439E 01	9.450E-01	0.000	1.518E 03	-3.950E 03	-1.977E 03	-1.973E 03	5.684E 03	2.251E 00	3.147E-03	0.000	0.000
8.725E 01	1.225E 00	0.000	1.544E 03	-3.967E 03	-1.994E 03	-1.973E 03	5.707E 03	2.918E 00	4.080E-03	0.000	0.000
8.726E 01	1.226E 00	0.000	1.544E 03	-3.967E 03	-1.994E 03	-1.973E 03	5.707E 03	2.919E 00	4.082E-03	0.000	0.000

READING = 0095 BLOCK = 142 TIME = 228.549 MACH 5.2 PT = 300.250 TT = 2944.3

X	DDRAG	CDRAG	CF	MC
4.040E 01	9.541E 01	9.541E 01	2.599E-03	3.474E-02
4.041E 01	1.387E-01	9.555E 01	2.924E-03	2.871E-02
4.127E 01	1.247E 01	1.080E 02	2.960E-03	3.395E-02
4.128E 01	1.352E-01	1.082E 02	2.791E-03	3.579E-02
4.134E 01	8.615E-01	1.090E 02	2.772E-03	3.636E-02
4.150E 01	2.025E 00	1.110E 02	2.792E-03	3.862E-02
4.246E 01	1.212E 01	1.232E 02	2.837E-03	4.262E-02
4.406E 01	1.785E 01	1.410E 02	3.016E-03	5.566E-02
4.431E 01	2.458E 00	1.435E 02	3.183E-03	5.231E-02
4.478E 01	4.810E 00	1.483E 02	3.182E-03	5.258E-02
4.480E 01	2.058E-01	1.485E 02	3.210E-03	5.201E-02
4.625E 01	1.541E 01	1.639E 02	3.421E-03	4.837E-02
4.626E 01	1.067E-01	1.640E 02	3.121E-03	5.393E-02
4.730E 01	1.027E 01	1.743E 02	3.052E-03	5.269E-02
4.731E 01	5.640E-02	1.743E 02	3.157E-03	5.075E-02
4.811E 01	7.713E 00	1.820E 02	3.130E-03	4.944E-02
4.874E 01	6.276E 00	1.883E 02	3.432E-03	4.256E-02
4.875E 01	9.942E-02	1.884E 02	3.100E-03	4.789E-02
4.928E 01	4.924E 00	1.933E 02	3.056E-03	4.585E-02
5.069E 01	1.236E 01	2.057E 02	2.988E-03	4.034E-02
5.279E 01	1.644E 01	2.221E 02	3.043E-03	3.591E-02
5.329E 01	3.805E 00	2.259E 02	3.186E-03	3.032E-02
5.404E 01	5.775E 00	2.317E 02	3.109E-03	2.996E-02
5.480E 01	5.564E 00	2.373E 02	3.139E-03	2.898E-02
5.576E 01	6.760E 00	2.440E 02	3.157E-03	2.699E-02
5.623E 01	2.076E 00	2.461E 02	3.148E-03	2.458E-02
5.628E 01	3.238E-01	2.464E 02	3.358E-03	2.070E-02
5.642E 01	8.568E-01	2.473E 02	3.227E-03	2.139E-02
5.650E 01	4.925E-01	2.478E 02	3.552E-03	2.164E-02
5.678E 01	1.751E 00	2.495E 02	3.541E-03	2.149E-02
5.701E 01	1.419E 00	2.510E 02	3.532E-03	2.150E-02
5.773E 01	4.525E 00	2.555E 02	3.516E-03	2.142E-02
5.875E 01	5.694E 00	2.612E 02	3.546E-03	2.437E-02
6.076E 01	9.859E 00	2.710E 02	3.544E-03	2.511E-02
6.218E 01	7.611E 00	2.787E 02	3.485E-03	2.441E-02
6.465E 01	1.396E 01	2.926E 02	3.514E-03	2.333E-02
6.502E 01	1.964E 00	2.946E 02	3.560E-03	2.227E-02
6.506E 01	2.018E-01	2.948E 02	3.631E-03	2.274E-02
6.526E 01	1.031E 00	2.958E 02	3.625E-03	2.254E-02
6.692E 01	8.593E 00	3.044E 02	3.524E-03	1.516E-02
6.759E 01	3.121E 00	3.075E 02	3.504E-03	1.377E-02
6.836E 01	3.283E 00	3.108E 02	3.458E-03	1.083E-02
6.908E 01	2.620E 00	3.134E 02	3.413E-03	8.705E-03
6.969E 01	1.913E 00	3.153E 02	3.378E-03	7.259E-03
7.064E 01	2.475E 00	3.178E 02	3.322E-03	5.388E-03
7.107E 01	9.821E-01	3.188E 02	3.313E-03	5.175E-03
7.260E 01	3.707E 00	3.225E 02	3.341E-03	6.304E-03
7.275E 01	3.719E-01	3.229E 02	3.338E-03	6.229E-03
7.350E 01	1.647E 00	3.245E 02	3.288E-03	4.813E-03
7.351E 01	2.838E-03	3.245E 02	3.288E-03	4.805E-03
7.483E 01	9.344E-01	3.255E 02	3.292E-03	5.157E-03
7.768E 01	1.833E 00	3.273E 02	3.281E-03	5.269E-03
8.158E 01	1.752E 00	3.290E 02	3.206E-03	3.848E-03
8.439E 01	7.941E-01	3.298E 02	3.191E-03	3.813E-03
8.725E 01	3.563E-01	3.302E 02	3.210E-03	4.625E-03
8.726E 01	0.000	3.302E 02	3.210E-03	4.646E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1145.	(LBF)
MEASURED THRUST	758.	(LBF)
CALCULATED SPECIFIC IMPULSE	2202.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1458.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5872	
MEASURED THRUST COEFFICIENT	0.3888	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4738.	(LBF)
NET THRUST	1234.	(LBF)
SPECIFIC IMPULSE	2372.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6327	

MOMENTUM AND FORCES

INLET FRICTION DRAG	95.4	(LBF)
INLET MOMENTUM CHANGE	-709.3	(LBF)
COMBUSTOR FRICTION DRAG	199.2	(LBF)
COMBUSTOR STRUT DRAG	19.77	(LBF)
COMBUSTOR MOMENTUM CHANGE	993.	(LBF)
NOZZLE FRICTION DRAG	35.62	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	861.	(LBF)
NOZZLE PRESSURE INTEGRAL	897.	(LBF)
EXTERNAL FRICTION DRAG	43.27	(LBF)
EXTERNAL PRESSURE INTEGRAL	-946.	(LBF)
TOTAL EXTERNAL DRAG	-990.	(LBF)
TOTAL STRUT DRAG	19.77	(LBF)
CAVITY FORCE	-1352.	(LBF)
CALCULATED LOAD CELL FORCE	-1197.	(LBF)
MEASURED LOAD CELL FORCE	-1583.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -140.6, -118.3,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2849	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	87.261	(IN)
STRUT LEADING EDGE	56.425	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	65.025	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8655	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2557	
DELTA PT2	0.0924	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4034	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2602	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8964	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9130	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9060	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8741	
ENTHALPY AT PO - SUPERSONIC	27.70	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	48.60	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0273
EQUIVALENCE RATIO	0.848
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.2485
COMBUSTOR EFFECTIVENESS	0.8872

INJECTOR DISCHARGE COEFFICIENTS 1.0115, 0.4494, 0.9891, 0.7918

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9347
NOZZLE COEFFICIENT - CT	0.8526
PROCESS EFFICIENCY	0.8305
KINETIC ENERGY EFFICIENCY	0.8516

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.270	B
1C	44.300	
2A	48.745	D
2C	46.250	E
3A	54.035	
3B	56.220	
4	44.770	

Reading 95

t = 241.15 sec.

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	300.000	2945	653.4(779)	1.2948	28.919	2560											
0.000	0.383	513	-5.7(123)	1.3988	28.919	1111	5.171	5743	1.885	0.08025	17.787	0.8653	3260	7.162	183.3		
SPIKE TIP NB		2	0 7														
0.600	14.375	2945	653.4(779)	1.2947	28.919	2560											
0.600	13.162	2880	635.7(762)	1.2966	28.919	2537	0.371	940	2.093	0.08025	17.787	0.8653	3437	1.173	193.2		
WIND TUNNEL		3	0 0														
0.000	300.000	2945	653.4(779)	1.2948	28.919	2560											
0.000	0.421	527	-2.3(127)	1.3987	28.919	1126	5.088	5728	1.885	0.08566	18.986	0.8653	3474	7.620	183.0		
SPIKE TIP NB		4	0 0														
0.600	14.375	2945	653.4(779)	1.2947	28.919	2560											
0.600	12.969	2877	632.8(759)	1.2969	28.919	2533											
							0.401	1015	2.093	0.08566	18.986	0.8653	3474	1.351	183.0		
INLET THROAT		5	0 4														
40.400	119.715	2860	627.8(754)	1.2975	28.919	2526											
40.400	13.793	1698	295.5(425)	1.3382	28.919	1976	2.063	4078	1.939	0.62002	18.986	0.1120	2802	41.938	147.6		
INLET UPNRBK		6	0 3														
40.400	119.715	2860	627.8(754)	1.2975	28.919	2526											
40.400	13.090	1678	289.4(418)	1.3392	28.919	1964	2.095	4115	1.939	0.60166	18.986	0.1232	2841	38.472	149.6		
INLET DNNRBK		7	0 4														
40.400	78.297	2860	627.8(754)	1.2975	28.919	2526											
40.400	64.561	2735	590.7(718)	1.3015	28.919	2474	0.551	1362	1.968	0.60166	18.986	0.1232	2841	12.737	149.6		
COMBUSTOR	0	8	1 4														
40.410	119.915	2860	627.7(754)	1.2975	28.919	2526											
40.410	15.453	1746	308.7(438)	1.3360	28.919	2003	1.995	3995	1.939	0.66175	18.986	0.1120	2801	41.088	147.5		
COMBUSTOR	0	9	2 4														
41.282	101.109	2847	623.8(750)	1.2979	28.919	2520											
41.282	17.854	1880	345.5(474)	1.3306	28.919	2074	1.800	3732	1.949	0.66333	18.986	0.1118	2713	38.469	142.9		
COMBUSTOR	0	10	3 4														
41.347	99.905	2846	623.5(750)	1.2980	28.919	2520											
41.347	18.060	1890	348.4(477)	1.3302	28.919	2079	1.789	3710	1.950	0.66374	18.986	0.1117	2706	38.270	142.6		
COMBUSTOR	0	11	4 4														
41.500	97.131	2843	622.7(749)	1.2981	28.919	2519											
41.500	18.581	1915	355.2(484)	1.3293	28.919	2092	1.749	3659	1.952	0.66443	18.986	0.1116	2690	37.777	141.7		
COMBUSTOR	0	12	5 5														
42.460	86.725	2825	617.5(744)	1.2986	28.919	2512											
42.460	20.373	2001	379.2(508)	1.3261	28.919	2136	1.617	3453	1.957	0.65793	18.986	0.1127	2626	35.304	138.3		
COMBUSTOR	0	13	6 4														
44.067	79.369	2794	608.1(735)	1.2996	28.919	2499											
44.067	20.794	2031	387.6(516)	1.3250	28.919	2151	1.544	3322	1.960	0.63650	18.986	0.1165	2580	32.858	135.9		
COMBUSTOR	0	14	7 4														
44.310	78.493	2789	606.7(733)	1.2998	28.919	2497											
44.310	20.953	2037	389.2(518)	1.3248	28.919	2154	1.532	3299	1.961	0.63520	18.986	0.1167	2573	32.567	135.5		
COMBUSTOR	0	15	8 4														
44.782	76.713	2781	604.4(731)	1.3000	28.919	2493											
44.782	21.318	2051	393.1(522)	1.3243	28.919	2161	1.505	3251	1.961	0.63253	18.986	0.1172	2558	31.959	134.8		
COMBUSTOR	0	16	9 4														
44.800	76.640	2781	604.3(731)	1.3000	28.919	2493											
44.800	21.335	2051	393.3(522)	1.3243	28.919	2161	1.504	3249	1.961	0.63243	18.986	0.1172	2558	31.934	134.7		
COMBUSTOR	0	17	10 4														
46.260	72.302	2763	599.0(726)	1.3006	28.919	2486											
46.260	19.887	2031	387.7(517)	1.3250	28.919	2151	1.512	3252	1.963	0.59568	18.986	0.1244	2553	30.100	134.4		
COMBUSTOR	0	18	11 4														
47.307	71.332	2754	596.2(723)	1.3009	28.919	2482											
47.307	17.045	1955	366.4(495)	1.3278	28.919	2113											
							1.605	3391	1.963	0.55319	18.986	0.1340	2586	29.149	136.2		

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	4														
47.310	71.378	2754	596.2(	723)	1.3009	28.919	2482											
47.310	17.109	1957	366.8(	496)	1.3278	28.919	2113	1.603	3388	1.963	0.55435	18.986	0.1337	2565	29.183	136.2		
COMBUSTOR	0	20	13	4														
48.110	71.222	2747	594.1(	721)	1.3011	28.919	2479											
48.110	14.748	1882	346.0(	475)	1.3305	28.919	2075	1.698	3523	1.963	0.51666	18.986	0.1435	2621	28.284	138.0		
COMBUSTOR	0	21	14	4														
48.757	70.063	2741	592.5(	719)	1.3013	28.919	2476											
48.757	12.759	1819	328.6(	458)	1.3330	28.919	2042	1.780	3633	1.963	0.47700	18.986	0.1554	2652	26.931	139.7		
COMBUSTOR	0	22	15	4														
49.287	68.668	2737	591.2(	718)	1.3014	28.919	2475											
49.287	11.409	1774	316.5(	445)	1.3348	28.919	2018	1.837	3707	1.964	0.44611	18.986	0.1662	2673	25.701	140.8		
COMBUSTOR	0	23	16	4														
50.697	65.213	2726	587.9(	715)	1.3018	28.919	2470											
50.697	8.831	1678	290.2(	419)	1.3391	28.919	1965	1.964	3860	1.966	0.38021	18.986	0.1950	2719	22.808	143.2		
COMBUSTOR	0	24	17	4														
52.797	60.868	2713	584.0(	711)	1.3022	28.919	2464											
52.797	6.517	1572	261.6(	391)	1.3444	28.919	1906	2.107	4017	1.970	0.31162	18.986	0.2379	2767	19.452	145.8		
COMBUSTOR	0	25	18	4														
53.297	59.780	2710	583.2(	710)	1.3023	28.919	2463											
53.297	6.137	1553	256.6(	386)	1.3454	28.919	1896	2.133	4042	1.971	0.29889	18.986	0.2480	2775	18.777	146.2		
COMBUSTOR	0	26	19	4														
54.047	58.237	2706	582.1(	709)	1.3024	28.919	2462											
54.047	5.642	1528	249.8(	379)	1.3467	28.919	1881	2.168	4077	1.972	0.28174	18.986	0.2631	2786	17.852	146.8		
COMBUSTOR	0	27	20	4														
54.807	56.730	2703	581.0(	708)	1.3025	28.919	2460											
54.807	5.218	1506	243.8(	373)	1.3480	28.919	1868	2.199	4108	1.973	0.26643	18.986	0.2782	2796	17.007	147.3		
COMBUSTOR	0	28	21	4														
55.760	54.913	2699	579.8(	707)	1.3026	28.919	2458											
55.760	4.775	1481	237.4(	366)	1.3493	28.919	1854	2.233	4139	1.975	0.24970	18.986	0.2969	2806	16.063	147.8		
COMBUSTOR	0	29	22	4														
56.232	48.656	2697	579.3(	707)	1.3027	28.919	2458											
56.232	3.616	1421	221.5(	351)	1.3528	28.919	1818	2.327	4232	1.983	0.20150	18.986	0.3679	2838	13.251	149.5		
COMBUSTOR	0	30	23	5														
56.287	48.611	2697	579.3(	706)	1.3027	28.919	2458											
56.287	3.601	1420	221.2(	350)	1.3529	28.919	1817	2.329	4233	1.983	0.20093	18.986	0.3689	2838	13.218	149.5		
COMBUSTOR	0	31	24	5														
56.427	48.464	2696	579.1(	706)	1.3027	28.919	2457											
56.427	3.565	1417	220.4(	349)	1.3530	28.919	1816											
								2.334	4237	1.984	0.19949	18.986	0.3716	2840	13.135	149.6		
COMBUSTOR	0	32	25	4														
56.507	49.124	2696	579.1(	706)	1.3027	28.919	2457											
56.507	3.599	1415	220.0(	349)	1.3531	28.919	1815	2.336	4239	1.983	0.20172	18.986	0.3675	2840	13.289	149.6		
COMBUSTOR	0	33	26	4														
56.787	49.322	2695	578.8(	706)	1.3028	28.919	2457											
56.787	3.569	1410	218.6(	348)	1.3534	28.919	1811	2.344	4245	1.982	0.20105	18.986	0.3687	2842	13.265	149.7		
COMBUSTOR	0	34	27	4														
57.013	49.504	2695	578.6(	706)	1.3028	28.919	2457											
57.013	3.549	1406	217.6(	347)	1.3537	28.919	1809	2.349	4250	1.982	0.20071	18.986	0.3693	2844	13.257	149.8		
COMBUSTOR	0	35	28	3														
57.737	49.576	2693	578.0(	705)	1.3028	28.919	2456											
57.737	3.451	1394	214.5(	344)	1.3544	28.919	1802	2.367	4265	1.982	0.19753	18.986	0.3753	2849	13.093	150.0		
COMBUSTOR	0	36	29	3														
58.757	49.836	2690	577.3(	705)	1.3029	28.919	2455											
58.757	3.400	1386	212.2(	341)	1.3549	28.919	1797	2.379	4274	1.981	0.19627	18.986	0.3777	2851	13.037	150.2		
COMBUSTOR	0	37	30	5														
60.767	50.430	2687	576.3(	704)	1.3030	28.919	2453											
60.767	3.565	1397	215.1(	344)	1.3542	28.919	1803	2.358	4251	1.980	0.20310	18.986	0.3650	2842	13.419	149.7		

READING = 0095 BLOCK = 156 TIME = 241.149 MACH 5.2 PT = 300.000 TT = 2945.0

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 5														
62.187	50.867	2685	575.8(703)	1.3031	28.919	2453											
62.187	3.703	1406	217.6(347)	1.3537	28.919	1809	2.340	4233	1.979	0.20860	18.986	0.3553	2835	13.724	149.3		
NOZZLE AE		39	32 4														
87.263	50.867	2685	575.8(703)	1.3031	28.919	2453											
87.263	0.270	686	36.2(165)	1.3947	28.919	1283	4.051	5196	1.979	0.03827	18.986	1.9370	3200	3.090	168.6		
NOZZLE PO		40	33 4														
87.263	50.867	2685	575.8(703)	1.3031	28.919	2453											
87.263	0.421	778	58.6(188)	1.3909	28.919	1364	3.729	5087	1.979	0.05152	18.986	1.4387	3157	4.073	166.3		
FICTIVE COMBUSTR		62	55 0														
62.187	119.715	2688	575.8(703)	1.3031	28.919	2453											
62.187	0.421	611	17.8(147)	1.3971	28.919	1211	4.363	5284	1.920	0.06820	18.986	1.0869	3235	5.600	170.4		
FICTIVE NOZZLE		63	56 0														
87.263	108.684	2662	569.0(696)	1.3038	28.919	2443											
87.263	0.187	493	-10.5(119)	1.3990	28.919	1089	4.945	5385	1.924	0.03827	18.986	1.9371	3271	3.203	172.3		

READING = 0095 BLOCK = 156 TIME = 241.149 MACH 5.2 PT = 500.000 TT = 2945.0

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.981E-01	1.060E 00	0.000	-3.524E-01	0.000	0.000	0.000	2.470E-02	2.517E 00	3.533E-03	0.000	0.000
1.836E 01	1.060E 00	0.000	-3.520E 01	0.000	0.000	0.000	1.634E 02	2.517E 00	3.533E-03	0.000	0.000
3.070E 01	1.845E 00	0.000	-1.530E 02	0.000	0.000	0.000	5.053E 02	4.381E 00	6.150E-03	0.000	0.000
3.508E 01	3.099E 00	0.000	-3.132E 02	0.000	0.000	0.000	6.804E 02	7.359E 00	1.033E-02	0.000	0.000
3.516E 01	3.113E 00	4.349E 00	-3.610E 02	0.000	0.000	0.000	6.842E 02	7.392E 00	1.038E-02	1.033E 01	1.450E-02
3.517E 01	3.114E 00	4.335E 00	-3.610E 02	0.000	0.000	0.000	6.844E 02	7.394E 00	1.038E-02	1.029E 01	1.445E-02
3.555E 01	3.175E 00	3.461E 00	-3.670E 02	0.000	0.000	0.000	7.224E 02	7.539E 00	1.058E-02	8.219E 00	1.154E-02
3.584E 01	3.144E 00	2.800E 00	-3.751E 02	-2.046E 02	-2.046E 02	0.000	7.516E 02	7.465E 00	1.048E-02	6.648E 00	9.333E-03
3.606E 01	3.120E 00	3.759E 00	-3.814E 02	-2.072E 02	-2.072E 02	0.000	7.745E 02	7.408E 00	1.040E-02	8.925E 00	1.253E-02
3.648E 01	3.522E 00	5.564E 00	-3.903E 02	-2.123E 02	-2.123E 02	0.000	8.181E 02	8.362E 00	1.174E-02	1.321E 01	1.855E-02
3.701E 01	3.300E 00	7.842E 00	-4.016E 02	-2.636E 02	-2.190E 02	-4.460E 01	8.740E 02	7.835E 00	1.100E-02	1.862E 01	2.614E-02
3.730E 01	4.258E 00	9.075E 00	-4.069E 02	-2.808E 02	-2.228E 02	-5.807E 01	9.049E 02	1.011E 01	1.419E-02	2.155E 01	3.025E-02
3.803E 01	6.705E 00	1.092E 01	-4.469E 02	-3.249E 02	-2.329E 02	-9.194E 01	9.850E 02	1.592E 01	2.235E-02	2.592E 01	3.639E-02
3.832E 01	8.750E 00	1.164E 01	-4.663E 02	-3.425E 02	-2.373E 02	-1.051E 02	1.017E 03	2.077E 01	2.917E-02	2.763E 01	3.879E-02
3.875E 01	1.184E 01	1.179E 01	-5.017E 02	-3.700E 02	-2.450E 02	-1.250E 02	1.066E 03	2.810E 01	3.945E-02	2.799E 01	3.929E-02
3.879E 01	1.210E 01	1.180E 01	-5.047E 02	-3.724E 02	-2.457E 02	-1.267E 02	1.070E 03	2.873E 01	4.033E-02	2.802E 01	3.933E-02
3.901E 01	1.369E 01	1.269E 01	-5.206E 02	-3.872E 02	-2.502E 02	-1.369E 02	1.096E 03	3.250E 01	4.563E-02	3.013E 01	4.230E-02
3.930E 01	1.344E 01	1.384E 01	-5.369E 02	-4.006E 02	-2.566E 02	-1.500E 02	1.129E 03	3.191E 01	4.480E-02	3.286E 01	4.613E-02
3.950E 01	1.326E 01	9.833E 00	-5.458E 02	-4.208E 02	-2.615E 02	-1.592E 02	1.152E 03	3.149E 01	4.421E-02	2.335E 01	3.278E-02
3.979E 01	1.418E 01	4.175E 00	-5.633E 02	-4.412E 02	-2.691E 02	-1.721E 02	1.186E 03	3.368E 01	4.728E-02	9.913E 00	1.392E-02
4.000E 01	1.487E 01	4.269E 00	-5.800E 02	-4.567E 02	-2.752E 02	-1.815E 02	1.210E 03	3.530E 01	4.956E-02	1.014E 01	1.423E-02
4.040E 01	1.717E 01	4.446E 00	-6.119E 02	-4.866E 02	-2.875E 02	-1.990E 02	1.257E 03	4.078E 01	5.725E-02	1.056E 01	1.482E-02
4.041E 01	1.723E 01	4.450E 00	-6.126E 02	-4.873E 02	-2.879E 02	-1.995E 02	1.259E 03	4.091E 01	5.744E-02	1.057E 01	1.483E-02
4.128E 01	2.226E 01	4.835E 00	-6.894E 02	-5.623E 02	-3.180E 02	-2.443E 02	1.362E 03	5.284E 01	7.419E-02	1.148E 01	1.612E-02
4.135E 01	2.263E 01	4.864E 00	-6.955E 02	-5.685E 02	-3.204E 02	-2.481E 02	1.369E 03	5.373E 01	7.543E-02	1.155E 01	1.621E-02
4.150E 01	2.351E 01	5.324E 00	-7.099E 02	-5.835E 02	-3.263E 02	-2.572E 02	1.388E 03	5.583E 01	7.838E-02	1.264E 01	1.775E-02
4.246E 01	1.462E 01	8.206E 00	-7.625E 02	-6.826E 02	-3.652E 02	-3.174E 02	1.503E 03	3.473E 01	4.875E-02	1.948E 01	2.735E-02
4.407E 01	1.831E 01	1.303E 01	-7.885E 02	-8.605E 02	-4.310E 02	-4.295E 02	1.697E 03	4.347E 01	6.103E-02	3.094E 01	4.344E-02
4.431E 01	1.886E 01	1.328E 01	-7.930E 02	-8.869E 02	-4.406E 02	-4.463E 02	1.727E 03	4.479E 01	6.288E-02	3.153E 01	4.427E-02
4.478E 01	1.995E 01	1.376E 01	-8.023E 02	-9.313E 02	-4.589E 02	-4.724E 02	1.784E 03	4.736E 01	6.649E-02	3.268E 01	4.588E-02
4.480E 01	1.999E 01	1.378E 01	-8.027E 02	-9.328E 02	-4.596E 02	-4.732E 02	1.786E 03	4.746E 01	6.663E-02	3.272E 01	4.594E-02
4.626E 01	1.546E 01	1.528E 01	-7.916E 02	-1.033E 03	-5.132E 02	-5.195E 02	1.966E 03	3.671E 01	5.154E-02	3.628E 01	5.093E-02
4.731E 01	1.222E 01	1.635E 01	-7.472E 02	-1.087E 03	-5.488E 02	-5.384E 02	2.096E 03	2.901E 01	4.072E-02	3.882E 01	5.450E-02
4.731E 01	1.221E 01	1.634E 01	-7.480E 02	-1.087E 03	-5.489E 02	-5.384E 02	2.096E 03	2.898E 01	4.069E-02	3.879E 01	5.446E-02
4.811E 01	8.437E 00	1.316E 01	-7.041E 02	-1.127E 03	-5.746E 02	-5.525E 02	2.196E 03	2.003E 01	2.813E-02	3.124E 01	4.385E-02
4.876E 01	1.058E 01	1.058E 01	-6.668E 02	-1.158E 03	-5.944E 02	-5.635E 02	2.277E 03	2.513E 01	3.528E-02	2.513E 01	3.528E-02
4.929E 01	8.475E 00	8.475E 00	-6.404E 02	-1.182E 03	-6.099E 02	-5.723E 02	2.343E 03	2.012E 01	2.825E-02	2.012E 01	2.825E-02
5.070E 01	7.031E 00	7.031E 00	-5.831E 02	-1.243E 03	-6.484E 02	-5.942E 02	2.521E 03	1.669E 01	2.344E-02	1.669E 01	2.344E-02
5.280E 01	4.450E 00	4.450E 00	-5.199E 02	-1.318E 03	-6.982E 02	-6.196E 02	2.787E 03	1.057E 01	1.483E-02	1.057E 01	1.483E-02
5.330E 01	4.200E 00	4.200E 00	-5.087E 02	-1.333E 03	-7.087E 02	-6.241E 02	2.851E 03	9.972E 00	1.400E-02	9.972E 00	1.400E-02
5.405E 01	3.778E 00	3.778E 00	-4.932E 02	-1.354E 03	-7.235E 02	-6.306E 02	2.947E 03	8.970E 00	1.259E-02	8.970E 00	1.259E-02
5.481E 01	3.350E 00	3.350E 00	-4.794E 02	-1.374E 03	-7.373E 02	-6.360E 02	3.044E 03	7.954E 00	1.117E-02	7.954E 00	1.117E-02
5.576E 01	2.965E 00	2.965E 00	-4.643E 02	-1.397E 03	-7.530E 02	-6.436E 02	3.166E 03	7.040E 00	9.883E-03	7.040E 00	9.883E-03
5.623E 01	2.774E 00	2.774E 00	-4.307E 02	-1.406E 03	-7.594E 02	-6.467E 02	3.209E 03	6.587E 00	9.247E-03	6.587E 00	9.247E-03
5.629E 01	1.650E 00	2.752E 00	-4.299E 02	-1.407E 03	-7.601E 02	-6.471E 02	3.217E 03	3.918E 00	5.500E-03	6.534E 00	9.173E-03
5.643E 01	1.650E 00	2.695E 00	-4.281E 02	-1.410E 03	-7.617E 02	-6.480E 02	3.234E 03	3.918E 00	5.500E-03	6.400E 00	8.985E-03
5.651E 01	2.663E 00	2.663E 00	-4.271E 02	-1.411E 03	-7.626E 02	-6.485E 02	3.245E 03	6.323E 00	8.877E-03	6.323E 00	8.877E-03
5.679E 01	2.550E 00	2.550E 00	-4.237E 02	-1.416E 03	-7.656E 02	-6.504E 02	3.280E 03	6.055E 00	8.500E-03	6.055E 00	8.500E-03
5.701E 01	2.740E 00	2.740E 00	-4.211E 02	-1.420E 03	-7.679E 02	-6.518E 02	3.309E 03	6.507E 00	9.134E-03	6.507E 00	9.134E-03
5.774E 01	3.350E 00	3.350E 00	-4.128E 02	-1.431E 03	-7.747E 02	-6.565E 02	3.402E 03	7.954E 00	1.117E-02	7.954E 00	1.117E-02
5.876E 01	3.075E 00	3.075E 00	-4.054E 02	-1.445E 03	-7.823E 02	-6.629E 02	3.532E 03	7.301E 00	1.025E-02	7.301E 00	1.025E-02
6.077E 01	1.312E 00	1.312E 00	-4.049E 02	-1.464E 03	-7.922E 02	-6.719E 02	3.790E 03	3.116E 00	4.375E-03	3.116E 00	4.375E-03
6.219E 01	2.081E 00	2.081E 00	-4.049E 02	-1.474E 03	-7.974E 02	-6.764E 02	3.972E 03	4.942E 00	6.938E-03	4.942E 00	6.938E-03
6.465E 01	4.226E 00	4.226E 00	-4.049E 02	-1.496E 03	-8.082E 02	-6.902E 02	4.289E 03	1.003E 01	1.409E-02	1.003E 01	1.409E-02
6.503E 01	2.600E 00	4.554E 00	-4.049E 02	-1.503E 03	-8.100E 02	-6.932E 02	4.337E 03	6.173E 00	8.667E-03	1.081E 01	1.518E-02
6.507E 01	2.600E 00	4.586E 00	-4.049E 02	-1.504E 03	-8.102E 02	-6.935E 02	4.342E 03	6.173E 00	8.667E-03	1.089E 01	1.529E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.527E 01	2.642E 00	4.762E 00	-4.049E 02	-1.507E 03	-8.112E 02	-6.954E 02	4.368E 03	6.272E 00	8.806E-03	1.131E 01	1.588E-02
6.693E 01	2.987E 00	2.412E 00	-3.683E 02	-1.526E 03	-8.186E 02	-7.072E 02	4.583E 03	7.094E 00	9.958E-03	5.728E 00	8.042E-03
6.760E 01	2.254E 00	1.702E 00	-3.209E 02	-1.531E 03	-8.212E 02	-7.101E 02	4.665E 03	5.351E 00	7.512E-03	4.042E 00	5.675E-03
6.837E 01	1.410E 00	1.557E 00	-2.722E 02	-1.538E 03	-8.239E 02	-7.141E 02	4.760E 03	3.348E 00	4.700E-03	3.696E 00	5.108E-03
6.909E 01	1.434E 00	1.420E 00	-2.342E 02	-1.547E 03	-8.265E 02	-7.201E 02	4.848E 03	3.406E 00	4.781E-03	3.372E 00	4.733E-03
6.970E 01	1.455E 00	1.420E 00	-2.028E 02	-1.554E 03	-8.287E 02	-7.257E 02	4.922E 03	3.455E 00	4.850E-03	3.372E 00	4.733E-03
7.065E 01	1.273E 00	1.420E 00	-1.581E 02	-1.564E 03	-8.322E 02	-7.320E 02	5.036E 03	3.022E 00	4.242E-03	3.372E 00	4.733E-03
7.108E 01	1.190E 00	1.348E 00	-1.395E 02	-1.568E 03	-8.338E 02	-7.340E 02	5.088E 03	2.826E 00	3.967E-03	3.200E 00	4.492E-03
7.261E 01	1.791E 00	1.090E 00	-7.335E 01	-1.576E 03	-8.387E 02	-7.377E 02	5.273E 03	4.253E 00	5.970E-03	2.588E 00	3.633E-03
7.276E 01	1.850E 00	9.908E-01	-6.675E 01	-1.577E 03	-8.391E 02	-7.378E 02	5.290E 03	4.393E 00	6.167E-03	2.353E 00	3.303E-03
7.351E 01	1.385E 00	4.950E-01	-3.045E 01	-1.580E 03	-8.410E 02	-7.385E 02	5.374E 03	3.288E 00	4.616E-03	1.175E 00	1.650E-03
7.351E 01	1.382E 00	4.924E-01	-2.944E 01	-1.580E 03	-8.410E 02	-7.385E 02	5.375E 03	3.282E 00	4.608E-03	1.169E 00	1.641E-03
7.484E 01	5.600E-01	0.000	-8.927E 00	-1.584E 03	-8.440E 02	-7.400E 02	5.427E 03	1.330E 00	1.867E-03	0.000	0.000
7.769E 01	6.000E-01	0.000	1.427E 01	-1.589E 03	-8.486E 02	-7.400E 02	5.525E 03	1.425E 00	2.000E-03	0.000	0.000
8.159E 01	5.700E-01	0.000	3.927E 01	-1.593E 03	-8.526E 02	-7.400E 02	5.630E 03	1.353E 00	1.900E-03	0.000	0.000
8.440E 01	6.400E-01	0.000	5.271E 01	-1.596E 03	-8.558E 02	-7.400E 02	5.684E 03	1.520E 00	2.133E-03	0.000	0.000
8.726E 01	8.950E-01	0.000	7.123E 01	-1.602E 03	-8.617E 02	-7.400E 02	5.707E 03	2.125E 00	2.983E-03	0.000	0.000
8.726E 01	8.959E-01	0.000	7.124E 01	-1.602E 03	-8.617E 02	-7.400E 02	5.707E 03	2.126E 00	2.985E-03	0.000	0.000

READING = 0095 BLOCK = 156 TIME = 241.149 MACH 5.2 PT = 300.000 TT = 2945.0

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.590E 01	9.590E 01	2.619E-03	3.502E-02
4.041E 01	1.288E-01	9.603E 01	2.634E-03	3.774E-02
4.128E 01	1.104E 01	1.071E 02	2.751E-03	3.996E-02
4.135E 01	8.182E-01	1.079E 02	2.760E-03	4.015E-02
4.150E 01	1.921E 00	1.098E 02	2.781E-03	4.057E-02
4.246E 01	1.184E 01	1.216E 02	2.856E-03	4.153E-02
4.407E 01	1.905E 01	1.407E 02	2.894E-03	4.081E-02
4.431E 01	2.802E 00	1.435E 02	2.904E-03	4.088E-02
4.478E 01	5.418E 00	1.489E 02	2.926E-03	4.104E-02
4.480E 01	2.059E-01	1.491E 02	2.927E-03	4.105E-02
4.626E 01	1.631E 01	1.654E 02	2.935E-03	3.808E-02
4.731E 01	1.119E 01	1.766E 02	2.884E-03	3.510E-02
4.731E 01	3.104E-02	1.767E 02	2.886E-03	3.519E-02
4.811E 01	8.189E 00	1.848E 02	2.832E-03	3.201E-02
4.876E 01	6.278E 00	1.911E 02	2.785E-03	2.891E-02
4.929E 01	4.843E 00	1.960E 02	2.751E-03	2.601E-02
5.070E 01	1.169E 01	2.077E 02	2.676E-03	2.186E-02
5.280E 01	1.482E 01	2.225E 02	2.592E-03	1.716E-02
5.330E 01	3.149E 00	2.256E 02	2.578E-03	1.633E-02
5.405E 01	4.506E 00	2.301E 02	2.557E-03	1.523E-02
5.481E 01	4.325E 00	2.345E 02	2.539E-03	1.426E-02
5.576E 01	5.124E 00	2.396E 02	2.520E-03	1.322E-02
5.623E 01	1.571E 00	2.412E 02	2.457E-03	1.033E-02
5.629E 01	2.290E-01	2.414E 02	2.456E-03	1.029E-02
5.643E 01	5.748E-01	2.420E 02	2.453E-03	1.021E-02
5.651E 01	3.313E-01	2.423E 02	2.446E-03	1.029E-02
5.679E 01	1.157E 00	2.434E 02	2.438E-03	1.021E-02
5.701E 01	9.311E-01	2.444E 02	2.432E-03	1.016E-02
5.774E 01	2.959E 00	2.473E 02	2.418E-03	9.930E-03
5.876E 01	4.119E 00	2.515E 02	2.406E-03	9.803E-03
6.077E 01	8.209E 00	2.597E 02	2.407E-03	1.016E-02
6.219E 01	5.952E 00	2.656E 02	2.407E-03	1.044E-02
6.326E 01	1.020E 01	2.758E 02	2.429E-03	1.000E-02
6.465E 01	1.086E 01	2.882E 02	2.447E-03	1.156E-02
6.503E 01	1.646E 00	2.898E 02	2.413E-03	1.024E-02
6.507E 01	1.674E-01	2.900E 02	2.413E-03	1.028E-02
6.527E 01	8.444E-01	2.908E 02	2.417E-03	1.049E-02
6.693E 01	6.559E 00	2.974E 02	2.351E-03	8.306E-03
6.760E 01	2.005E 00	2.994E 02	2.291E-03	6.584E-03
6.837E 01	1.989E 00	3.014E 02	2.232E-03	5.292E-03
6.909E 01	1.656E 00	3.031E 02	2.220E-03	5.128E-03
6.970E 01	1.378E 00	3.045E 02	2.219E-03	5.150E-03
7.065E 01	2.088E 00	3.065E 02	2.204E-03	4.893E-03
7.108E 01	9.112E-01	3.075E 02	2.192E-03	4.675E-03
7.261E 01	3.295E 00	3.107E 02	2.210E-03	5.134E-03
7.276E 01	3.192E-01	3.111E 02	2.207E-03	5.079E-03
7.351E 01	1.370E 00	3.124E 02	2.131E-03	3.710E-03
7.351E 01	2.275E-03	3.124E 02	2.130E-03	3.702E-03
7.484E 01	6.180E-01	3.131E 02	2.037E-03	2.496E-03
7.769E 01	9.910E-01	3.140E 02	2.038E-03	2.616E-03
8.159E 01	1.059E 00	3.151E 02	2.016E-03	2.498E-03
8.440E 01	5.601E-01	3.157E 02	2.026E-03	2.715E-03
8.726E 01	2.712E-01	3.159E 02	2.074E-03	3.488E-03
8.726E 01	0.000	3.159E 02	2.074E-03	3.489E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-239.	(LBF)
MEASURED THRUST	-481.	(LBF)
CALCULATED SPECIFIC IMPULSE	-239.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-481.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.1223	
MEASURED THRUST COEFFICIENT	-.2463	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	95.9	(LBF)
INLET MOMENTUM CHANGE	-707.8	(LBF)
COMBUSTOR FRICTION DRAG	169.7	(LBF)
COMBUSTOR STRUT DRAG	3.95	(LBF)
COMBUSTOR MOMENTUM CHANGE	33.	(LBF)
NOZZLE FRICTION DRAG	38.65	(LBF)
NOZZLE STRUT DRAG	1.95	(LBF)
NOZZLE MOMENTUM CHANGE	436.	(LBF)
NOZZLE PRESSURE INTEGRAL	476.	(LBF)
EXTERNAL FRICTION DRAG	35.98	(LBF)
EXTERNAL PRESSURE INTEGRAL	-939.	(LBF)
TOTAL EXTERNAL DRAG	-975.	(LBF)
TOTAL STRUT DRAG	5.89	(LBF)
CAVITY FORCE	-1409.	(LBF)
CALCULATED LOAD CELL FORCE	-2623.	(LBF)
MEASURED LOAD CELL FORCE	-2865.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2869	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.171	(IN)
NOZZLE SHROUD TRAILING EDGE	73.511	(IN)
NOZZLE PLUG TRAILING EDGE	87.263	(IN)
STRUT LEADING EDGE	56.427	(IN)
STRUT TRAILING EDGE	65.027	(IN)
COMBUSTOR EXIT	62.187	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8653	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2564	
DELTA PT2	0.0935	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3990	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2610	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8923	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9114	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9120	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8808	
ENTHALPY AT PO - SUPERSONIC	29.76	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	50.22	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.4249
COMBUSTOR EFFECTIVENESS	0.8200
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0220
NOZZLE COEFFICIENT - CT	0.9698
PROCESS EFFICIENCY	1.1530
KINETIC ENERGY EFFICIENCY	1.0423

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.272	
1C	44.300	
2A	48.747	
2C	46.250	
3A	54.037	
3B	56.222	
4	44.772	

Reading 95

t = 252.85 sec.

READING = 0095 BLOCK = 169 TIME = 252.849 MACH 5.2 PT = 322.750 TT = 2803.2 PAGE 1

RAMJET PERFORMANCE

2-28-75

S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MUPTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	322.750	2803	610.9(737)	1.2993	28.919	2502											
0.000	0.420	485	-12.4(117)	1.3991	28.919	1080	5.170	5585	1.865	0.09050	20.059	0.8653	3575	7.855	176.2		
SPIKE TIP NS		2	0 6														
0.600	15.512	2803	610.9(737)	1.2993	28.919	2502											
0.600	14.146	2744	593.3(720)	1.3012	28.919	2478	0.379	938	2.073	0.09050	20.059	0.8653	3720	1.420	185.5		
WIND TUNNEL		3	0 0														
0.000	322.750	2803	610.9(737)	1.2993	28.919	2502											
0.000	0.451	495	-10.0(119)	1.3990	28.919	1091	5.108	5574	1.865	0.09507	21.072	0.8653	3751	8.235	178.0		
SPIKE TIP NS		4	0 0														
0.600	15.512	2803	610.9(737)	1.2993	28.919	2502											
0.600	13.984	2737	591.1(718)	1.3014	28.919	2475	0.402	994	2.073	0.09507	21.072	0.8653	3751	1.469	178.0		
INLET THROAT		5	0 3														
40.400	132.475	2710	583.1(710)	1.3023	28.919	2463											
40.400	14.942	1591	266.8(396)	1.3434	28.919	1917	2.076	3979	1.916	0.69923	21.072	0.1120	3035	45.420	144.0		
INLET UPNRSK		6	0 3														
40.400	132.475	2710	583.1(710)	1.3023	28.919	2463											
40.400	13.794	1559	258.1(387)	1.3451	28.919	1899	2.124	4033	1.916	0.66776	21.072	0.1232	3077	41.852	146.0		
INLET DNNRSK		7	0 4														
40.400	84.869	2710	583.2(710)	1.3023	28.919	2463											
40.400	70.124	2592	548.4(676)	1.3061	28.919	2412	0.547	1319	1.947	0.66776	21.072	0.1232	3077	13.687	146.0		
COMBUSTOR	0	8	1 21														
40.410	114.438	2688	588.6(736)	1.3043	27.593	2513											
40.410	13.258	1585	263.1(413)	1.3452	27.593	1960	2.059	4036	2.002	0.73721	21.151	0.1120	3034	46.236	143.4	0.12	0.07
COMBUSTOR	0	9	2 21														
41.272	94.217	2618	585.4(732)	1.3077	26.903	2515											
41.272	18.033	1748	321.7(470)	1.3386	26.903	2080	1.747	3632	2.048	0.74094	21.193	0.1117	2908	41.822	137.2	0.18	0.03
COMBUSTOR	0	10	3 21														
41.282	95.885	2591	585.4(724)	1.3090	26.875	2505											
41.282	18.088	1722	322.5(462)	1.3401	26.875	2066	1.756	3627	2.044	0.74043	21.193	0.1118	2907	41.732	137.2	0.18	0.00
COMBUSTOR	0	11	4 21														
41.347	94.825	2585	584.9(722)	1.3092	26.870	2503											
41.347	18.448	1731	326.5(465)	1.3397	26.870	2071	1.736	3596	2.044	0.74090	21.193	0.1117	2896	41.402	136.7	0.18	0.00
COMBUSTOR	0	12	5 21														
41.500	92.299	2582	583.9(721)	1.3094	26.870	2501											
41.500	20.470	1786	342.9(481)	1.3374	26.869	2103	1.652	3473	2.045	0.74166	21.193	0.1116	2872	40.024	135.5	0.18	0.00
COMBUSTOR	0	13	6 21														
42.460	80.613	2626	577.0(734)	1.3071	26.939	2517											
42.460	23.463	1948	370.1(528)	1.3304	26.939	2187	1.471	3218	2.059	0.73441	21.193	0.1127	2797	36.725	132.0	0.18	0.07
COMBUSTOR	0	14	7 4														
44.067	75.917	2883	564.4(810)	1.2948	27.260	2609											
44.067	39.941	2485	439.0(686)	1.3080	27.260	2435	1.029	2506	2.084	0.71049	21.193	0.1165	2842	27.665	134.1	0.18	0.38
COMBUSTOR	0	15	8 3														
44.310	76.064	2911	562.4(818)	1.2934	27.297	2618											
44.310	40.453	2516	437.9(695)	1.3066	27.298	2447	1.020	2496	2.085	0.70904	21.193	0.1167	2853	27.507	134.6	0.18	0.41
COMBUSTOR	0	16	9 3														
44.782	76.317	2960	558.1(833)	1.2909	27.367	2635											
44.782	41.448	2574	435.6(712)	1.3038	27.368	2469	1.003	2476	2.088	0.70606	21.193	0.1172	2875	27.164	135.6	0.18	0.48
COMBUSTOR	0	17	10 2														
44.800	76.323	2962	557.9(833)	1.2908	27.370	2635											
44.800	41.486	2576	435.6(713)	1.3037	27.370	2470	1.002	2475	2.088	0.70595	21.193	0.1172	2875	27.149	135.7	0.18	0.48
COMBUSTOR	0	18	11 8														
46.250	73.707	2690	558.2(843)	1.3056	24.087	2692											
46.250	42.150	2355	442.0(728)	1.3169	24.087	2530	0.953	2411	2.274	0.07248	21.423	0.1244	2948	25.196	137.6	0.53	0.16

READING = 0095 BLOCK = 169 TIME = 252,849 MACH 5.2 PT = 322.750 TT = 2803.2

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	73,693	2691	558.1(843)	1,3055	24,089	2693											
46.260	42,155	2357	441,9(728)	1,3168	24,089	2531	0,953	2411	2,274	0,67215	21,423	0,1244	2949	25,183	137,7	0,53	0,16
COMBUSTOR	0	20	13 4														
47.307	71,265	2903	547,0(913)	1,2953	24,323	2772											
47.307	42,635	2578	432,1(800)	1,3063	24,323	2624	0,914	2398	2,295	0,62420	21,423	0,1340	3060	23,260	142,8	0,53	0,25
COMBUSTOR	0	21	14 2														
47.310	71,338	2897	546,9(911)	1,2956	24,318	2770											
47.310	42,626	2572	432,0(798)	1,3065	24,318	2621	0,915	2398	2,294	0,62551	21,423	0,1337	3057	23,314	142,7	0,53	0,25
COMBUSTOR	0	22	15 4														
48.110	68,499	3103	539,4(980)	1,2897	24,543	2843											
48.110	40,301	2753	413,8(857)	1,2976	24,544	2690	0,932	2507	2,313	0,58299	21,423	0,1435	3190	22,714	147,1	0,53	0,35
COMBUSTOR	0	23	16 6														
48.747	64,597	2845	550,7(990)	1,2999	21,851	2901											
48.747	33,062	2431	390,2(832)	1,3140	21,851	2696	1,051	2833	2,498	0,54484	21,658	0,1552	3221	23,989	148,7	0,88	0,19
COMBUSTOR	0	24	17 2														
48.757	64,552	2848	550,6(991)	1,2998	21,853	2902											
48.757	32,986	2433	389,7(832)	1,3139	21,853	2697	1,052	2838	2,498	0,54413	21,658	0,1554	3223	23,995	148,8	0,88	0,19
COMBUSTOR	0	25	18 4														
49.287	62,383	2974	547,6(1038)	1,2938	21,971	2951											
49.287	28,937	2489	358,2(851)	1,3103	21,972	2717	1,133	3078	2,513	0,50889	21,658	0,1662	3304	24,345	152,5	0,88	0,23
COMBUSTOR	0	26	19 4														
50.697	57,203	3270	540,3(1148)	1,2793	22,255	3057											
50.697	23,437	2676	304,1(917)	1,2999	22,258	2787	1,233	3438	2,544	0,43372	21,658	0,1950	3485	23,174	160,9	0,88	0,32
COMBUSTOR	0	27	20 5														
52.797	49,861	3717	527,1(1322)	1,2545	22,614	3202											
52.797	21,150	3105	270,6(1078)	1,2783	22,626	2953	1,213	3583	2,594	0,35737	21,773	0,2379	3713	19,898	170,5	0,88	0,45
COMBUSTOR	0	28	21 4														
53.297	51,168	3612	524,9(1282)	1,2605	22,516	3171											
53.297	16,800	2841	208,6(977)	1,2891	22,526	2843	1,399	3977	2,586	0,34277	21,773	0,2480	3758	21,184	172,6	0,88	0,42
COMBUSTOR	0	29	22 4														
54.047	48,721	3756	521,6(1336)	1,2519	22,665	3212											
54.047	16,427	2988	201,2(1031)	1,2818	22,680	2897	1,382	4004	2,598	0,32310	21,773	0,2631	3817	20,104	175,3	0,88	0,47
COMBUSTOR	0	30	23 4														
54.807	46,587	3896	518,4(1390)	1,2429	22,814	3248											
54.807	16,050	3131	193,1(1084)	1,2743	22,837	2947	1,369	4034	2,609	0,30554	21,773	0,2782	3874	19,154	177,9	0,88	0,51
COMBUSTOR	0	31	24 4														
55.760	44,991	3999	514,4(1429)	1,2357	22,929	3273											
55.760	14,847	3200	169,5(1109)	1,2699	22,961	2966	1,400	4154	2,617	0,28636	21,773	0,2969	3940	18,488	181,0	0,88	0,55
COMBUSTOR	0	32	25 5														
56.232	36,962	4552	512,5(1663)	1,1905	23,525	3384											
56.232	14,251	3887	173,8(1368)	1,2255	23,658	3164	1,301	4117	2,657	0,23108	21,773	0,3679	4129	14,784	189,6	0,88	0,75
COMBUSTOR	0	33	26 5														
56.287	39,104	4327	512,3(1556)	1,2100	23,280	3344											
56.287	11,916	3473	117,9(1209)	1,2522	23,363	3042	1,460	4443	2,644	0,23043	21,773	0,3689	4133	15,910	189,8	0,88	0,66
COMBUSTOR	0	34	27 3														
56.427	38,958	4341	511,8(1561)	1,2089	23,296	3347											
56.427	11,827	3485	115,1(1213)	1,2514	23,382	3045	1,463	4455	2,644	0,22877	21,773	0,3716	4141	15,840	190,2	0,88	0,66
COMBUSTOR	0	35	28 21														
56.507	34,166	5013	511,6(1822)	1,1495	24,034	3453											
56.507	13,904	4506	160,3(1606)	1,1638	24,383	3270	1,282	4192	2,670	0,23133	21,773	0,3675	4146	15,071	190,4	0,88	1,00
COMBUSTOR	0	36	29 21														
56.787	34,320	5012	510,6(1822)	1,1496	24,036	3452											
56.787	13,550	4488	148,3(1598)	1,1647	24,394	3264	1,304	4257	2,669	0,23057	21,773	0,3687	4161	15,255	191,1	0,88	1,00
COMBUSTOR	0	37	30 21														
57.013	34,715	5013	509,8(1822)	1,1497	24,038	3453											
57.013	14,228	4509	161,3(1607)	1,1640	24,384	3271	1,277	4176	2,668	0,23017	21,773	0,3693	4172	14,938	191,6	0,88	1,00

READING = 0095 BLOCK = 169 TIME = 252.849 MACH 5.2 PI = 322.750 TI = 2803.2

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
57.737	35.295	5013	507.6(1822)	1.1500	24.044	3452											
57.737	16.400	4580	205.7(1637)	1.1615	24.346	3296	1.179	3887	2.666	0.22653	21.773	0.3753	4207	13.683	193.2	0.88	1.00
COMBUSTOR	0	39	32 200														
58.757	35.779	5011	504.4(1821)	1.1502	24.050	3452											
58.757	21.057	4711	292.1(1693)	1.1573	24.267	3342	0.975	3259	2.665	0.22508	21.773	0.3777	4241	11.401	194.8	0.88	1.00
COMBUSTOR	0	40	33 200														
60.767	36.825	5007	497.8(1819)	1.1508	24.063	3450											
60.767	22.537	4729	301.3(1700)	1.1573	24.263	3349	0.936	3136	2.661	0.23291	21.773	0.3650	4229	11.351	194.2	0.88	1.00
COMBUSTOR	0	41	34 21														
62.187	37.646	5005	493.2(1818)	1.1512	24.072	3450											
62.187	18.956	4614	222.4(1651)	1.1616	24.340	3309	1.113	3681	2.658	0.23983	21.773	0.3553	4217	13.686	193.7	0.88	1.00
COMBUSTOR	0	42	35 21														
64.651	35.279	4987	484.3(1811)	1.1510	24.076	3443											
64.651	17.021	4573	198.5(1634)	1.1625	24.358	3294	1.148	3782	2.662	0.22676	21.773	0.3749	4194	13.328	192.6	0.88	1.00
COMBUSTOR	0	43	36 21														
65.027	32.794	4977	482.8(1807)	1.1504	24.068	3439											
65.027	16.500	4590	213.1(1641)	1.1609	24.338	3299	1.114	3674	2.668	0.21081	21.773	0.4032	4190	12.036	192.5	0.88	1.00
COMBUSTOR	REGEN	44	37 21														
65.027	32.794	5069	570.7(1847)	1.1467	23.944	3474											
65.027	14.905	4635	255.4(1661)	1.1564	24.277	3313	1.199	3972	2.685	0.21081	21.773	0.4032	4228	13.013	194.2	0.88	1.00
NOZZLE AE		45	38 4														
87.263	32.794	4977	482.8(1758)	1.1504	24.068	3439											
87.263	1.075	2906	-616.3(962)	1.2596	24.718	2713	2.733	7416	2.668	0.04388	21.773	1.9373	5552	5.058	255.0	0.88	1.00
NOZZLE PO		46	39 4														
87.263	32.794	4977	482.8(1758)	1.1504	24.068	3439											
87.263	0.451	2418	-801.7(779)	1.2781	24.721	2493	3.216	8017	2.668	0.02394	21.773	3.5512	5836	2.983	266.0	0.88	1.00
NOZZLE AE REGEN		47	40 5														
87.263	32.794	5069	570.7(1847)	1.1467	23.944	3474											
87.263	1.120	3062	-554.3(1023)	1.2523	24.714	2778	2.701	7503	2.685	0.04388	21.773	1.9371	5633	5.117	258.7	0.88	1.00
NOZZLE PO REGEN		48	41 5														
87.263	32.794	5069	570.7(1847)	1.1467	23.944	3474											
87.263	0.451	2534	-758.4(822)	1.2737	24.721	2548	3.201	8155	2.685	0.02323	21.773	3.6593	5942	2.944	272.9	0.88	1.00
FICTIVE COMBUSTR		68	61 0														
65.027	132.475	5131	482.8(1868)	1.1639	24.240	3500											
65.027	0.451	1750	-1039.5(542)	1.3068	24.721	2145	4.070	8728	2.553	0.03600	21.773	2.3616	6179	4.882	283.8	0.88	1.00
FICTIVE NOZZLE		69	62 0														
87.263	16.700	4875	461.5(1765)	1.1452	24.009	3400											
87.263	1.497	3506	-366.2(1197)	1.2227	24.682	2939	2.190	6435	2.719	0.04388	21.773	1.9371	5098	4.389	234.1	0.88	1.00

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.981E-01	1.065E 00	0.000	-3.802E-01	0.000	0.000	0.000	2.470E-02	2.360E 00	3.300E-03	0.000	0.000
1.836E 01	1.065E 00	0.000	-3.540E 01	0.000	0.000	0.000	1.634E 02	2.360E 00	3.300E-03	0.000	0.000
3.070E 01	1.865E 00	0.000	-1.550E 02	0.000	0.000	0.000	5.053E 02	4.178E 00	5.840E-03	0.000	0.000
3.508E 01	3.171E 00	0.000	-3.188E 02	0.000	0.000	0.000	6.804E 02	7.027E 00	9.824E-03	0.000	0.000
3.516E 01	3.193E 00	4.681E 00	-3.699E 02	0.000	0.000	0.000	6.842E 02	7.077E 00	9.893E-03	1.037E 01	1.450E-02
3.517E 01	3.195E 00	4.664E 00	-3.700E 02	0.000	0.000	0.000	6.844E 02	7.080E 00	9.898E-03	1.034E 01	1.445E-02
3.555E 01	3.295E 00	3.575E 00	-3.757E 02	0.000	0.000	0.000	7.224E 02	7.303E 00	1.021E-02	7.922E 00	1.108E-02
3.584E 01	3.272E 00	2.750E 00	-3.844E 02	-2.585E 02	-2.585E 02	0.000	7.516E 02	7.253E 00	1.014E-02	6.095E 00	8.521E-03
3.606E 01	3.255E 00	3.768E 00	-3.913E 02	-2.618E 02	-2.618E 02	0.000	7.745E 02	7.214E 00	1.009E-02	8.351E 00	1.167E-02
3.648E 01	3.654E 00	5.685E 00	-4.011E 02	-2.682E 02	-2.682E 02	0.000	8.181E 02	8.099E 00	1.132E-02	1.260E 01	1.761E-02
3.701E 01	3.375E 00	8.103E 00	-4.128E 02	-3.191E 02	-2.767E 02	-4.236E 01	8.740E 02	7.480E 00	1.046E-02	1.796E 01	2.511E-02
3.730E 01	4.402E 00	9.412E 00	-4.182E 02	-3.366E 02	-2.815E 02	-5.514E 01	9.049E 02	9.757E 00	1.364E-02	2.086E 01	2.916E-02
3.803E 01	7.027E 00	1.131E 01	-4.602E 02	-3.816E 02	-2.944E 02	-8.724E 01	9.850E 02	1.557E 01	2.177E-02	2.506E 01	3.504E-02
3.832E 01	9.325E 00	1.205E 01	-4.811E 02	-4.001E 02	-3.004E 02	-9.974E 01	1.017E 03	2.067E 01	2.889E-02	2.671E 01	3.734E-02
3.875E 01	1.279E 01	1.226E 01	-5.203E 02	-4.308E 02	-3.123E 02	-1.185E 02	1.066E 03	2.835E 01	3.964E-02	2.717E 01	3.798E-02
3.879E 01	1.309E 01	1.227E 01	-5.236E 02	-4.336E 02	-3.135E 02	-1.201E 02	1.070E 03	2.901E 01	4.055E-02	2.720E 01	3.803E-02
3.901E 01	1.487E 01	1.312E 01	-5.416E 02	-4.510E 02	-3.212E 02	-1.298E 02	1.096E 03	3.297E 01	4.609E-02	2.907E 01	4.064E-02
3.930E 01	1.491E 01	1.420E 01	-5.610E 02	-4.750E 02	-3.328E 02	-1.421E 02	1.129E 03	3.305E 01	4.620E-02	3.147E 01	4.400E-02
3.950E 01	1.494E 01	1.009E 01	-5.723E 02	-4.930E 02	-3.422E 02	-1.508E 02	1.152E 03	3.311E 01	4.628E-02	2.235E 01	3.125E-02
3.979E 01	1.650E 01	4.275E 00	-5.938E 02	-5.202E 02	-3.572E 02	-1.629E 02	1.186E 03	3.658E 01	5.113E-02	9.475E 00	1.325E-02
4.000E 01	1.767E 01	4.308E 00	-6.143E 02	-5.416E 02	-3.698E 02	-1.718E 02	1.210E 03	3.915E 01	5.473E-02	9.548E 00	1.335E-02
4.040E 01	2.203E 01	4.371E 00	-6.563E 02	-5.838E 02	-3.954E 02	-1.885E 02	1.257E 03	4.884E 01	6.827E-02	9.687E 00	1.354E-02
4.041E 01	2.214E 01	4.372E 00	-6.573E 02	-5.849E 02	-3.961E 02	-1.889E 02	1.259E 03	4.908E 01	6.861E-02	9.690E 00	1.355E-02
4.127E 01	3.156E 01	4.507E 00	-7.698E 02	-6.908E 02	-4.572E 02	-2.336E 02	1.360E 03	6.994E 01	9.778E-02	9.989E 00	1.396E-02
4.128E 01	3.167E 01	4.509E 00	-7.713E 02	-6.922E 02	-4.580E 02	-2.342E 02	1.362E 03	7.018E 01	9.812E-02	9.992E 00	1.397E-02
4.135E 01	3.238E 01	4.519E 00	-7.808E 02	-7.012E 02	-4.629E 02	-2.383E 02	1.369E 03	7.176E 01	1.003E-01	1.001E 01	1.400E-02
4.150E 01	3.405E 01	6.890E 00	-8.027E 02	-7.228E 02	-4.748E 02	-2.480E 02	1.388E 03	7.546E 01	1.055E-01	1.527E 01	2.135E-02
4.246E 01	2.516E 01	2.176E 01	-8.662E 02	-8.685E 02	-5.554E 02	-3.132E 02	1.503E 03	5.577E 01	7.796E-02	4.823E 01	6.743E-02
4.407E 01	3.322E 01	4.666E 01	-8.030E 02	-1.135E 03	-7.049E 02	-4.299E 02	1.697E 03	7.363E 01	1.029E-01	1.034E 02	1.446E-01
4.431E 01	3.444E 01	4.646E 01	-7.889E 02	-1.178E 03	-7.286E 02	-4.490E 02	1.727E 03	7.633E 01	1.067E-01	1.030E 02	1.440E-01
4.478E 01	3.681E 01	4.609E 01	-7.627E 02	-1.269E 03	-7.756E 02	-4.931E 02	1.784E 03	8.158E 01	1.140E-01	1.021E 02	1.428E-01
4.480E 01	3.690E 01	4.607E 01	-7.618E 02	-1.272E 03	-7.775E 02	-4.950E 02	1.786E 03	8.178E 01	1.143E-01	1.021E 02	1.427E-01
4.625E 01	3.939E 01	4.491E 01	-6.403E 02	-1.588E 03	-9.180E 02	-6.697E 02	1.965E 03	8.730E 01	1.220E-01	9.953E 01	1.391E-01
4.626E 01	3.941E 01	4.490E 01	-6.394E 02	-1.590E 03	-9.190E 02	-6.710E 02	1.966E 03	8.734E 01	1.221E-01	9.951E 01	1.391E-01
4.731E 01	4.121E 01	4.406E 01	-5.184E 02	-1.828E 03	-1.013E 03	-8.142E 02	2.096E 03	9.133E 01	1.277E-01	9.765E 01	1.365E-01
4.731E 01	4.121E 01	4.404E 01	-5.213E 02	-1.828E 03	-1.014E 03	-8.146E 02	2.096E 03	9.134E 01	1.277E-01	9.760E 01	1.364E-01
4.811E 01	4.267E 01	3.793E 01	-4.208E 02	-1.989E 03	-1.082E 03	-9.070E 02	2.196E 03	9.458E 01	1.322E-01	8.406E 01	1.175E-01
4.875E 01	3.306E 01	3.306E 01	-3.160E 02	-2.090E 03	-1.134E 03	-9.560E 02	2.275E 03	7.328E 01	1.024E-01	7.328E 01	1.024E-01
4.876E 01	3.299E 01	3.299E 01	-3.143E 02	-2.092E 03	-1.135E 03	-9.566E 02	2.277E 03	7.311E 01	1.022E-01	7.311E 01	1.022E-01
4.929E 01	2.894E 01	2.894E 01	-2.287E 02	-2.158E 03	-1.177E 03	-9.807E 02	2.343E 03	6.413E 01	8.966E-02	6.413E 01	8.966E-02
5.070E 01	2.344E 01	2.344E 01	-3.514E 01	-2.315E 03	-1.281E 03	-1.034E 03	2.521E 03	5.194E 01	7.262E-02	5.194E 01	7.262E-02
5.280E 01	2.115E 01	2.115E 01	2.103E 02	-2.542E 03	-1.416E 03	-1.126E 03	2.787E 03	4.687E 01	6.553E-02	4.687E 01	6.553E-02
5.330E 01	1.680E 01	1.680E 01	2.597E 02	-2.592E 03	-1.445E 03	-1.146E 03	2.851E 03	3.723E 01	5.205E-02	3.723E 01	5.205E-02
5.405E 01	1.643E 01	1.643E 01	3.239E 02	-2.663E 03	-1.486E 03	-1.176E 03	2.947E 03	3.641E 01	5.090E-02	3.641E 01	5.090E-02
5.481E 01	1.605E 01	1.605E 01	3.869E 02	-2.733E 03	-1.525E 03	-1.208E 03	3.044E 03	3.557E 01	4.973E-02	3.557E 01	4.973E-02
5.576E 01	1.485E 01	1.485E 01	4.607E 02	-2.820E 03	-1.569E 03	-1.250E 03	3.166E 03	3.290E 01	4.600E-02	3.290E 01	4.600E-02
5.623E 01	1.425E 01	1.425E 01	6.515E 02	-2.860E 03	-1.588E 03	-1.272E 03	3.209E 03	3.158E 01	4.415E-02	3.158E 01	4.415E-02
5.629E 01	9.650E 00	1.418E 01	6.595E 02	-2.864E 03	-1.590E 03	-1.275E 03	3.217E 03	2.139E 01	2.990E-02	3.143E 01	4.394E-02
5.643E 01	9.650E 00	1.400E 01	6.647E 02	-2.875E 03	-1.594E 03	-1.281E 03	3.234E 03	2.139E 01	2.990E-02	3.104E 01	4.339E-02
5.651E 01	1.390E 01	1.390E 01	6.703E 02	-2.882E 03	-1.597E 03	-1.285E 03	3.245E 03	3.081E 01	4.308E-02	3.081E 01	4.308E-02
5.679E 01	1.355E 01	1.355E 01	6.883E 02	-2.903E 03	-1.606E 03	-1.297E 03	3.280E 03	3.003E 01	4.198E-02	3.003E 01	4.198E-02
5.701E 01	1.423E 01	1.423E 01	7.018E 02	-2.919E 03	-1.613E 03	-1.306E 03	3.309E 03	3.153E 01	4.408E-02	3.153E 01	4.408E-02
5.774E 01	1.640E 01	1.640E 01	7.433E 02	-2.968E 03	-1.633E 03	-1.335E 03	3.402E 03	3.635E 01	5.081E-02	3.635E 01	5.081E-02
5.876E 01	2.104E 01	2.104E 01	7.866E 02	-3.037E 03	-1.657E 03	-1.380E 03	3.532E 03	4.662E 01	6.518E-02	4.662E 01	6.518E-02
6.077E 01	2.254E 01	2.254E 01	7.917E 02	-3.179E 03	-1.693E 03	-1.487E 03	3.790E 03	4.995E 01	6.983E-02	4.995E 01	6.983E-02
6.219E 01	1.896E 01	1.896E 01	7.917E 02	-3.281E 03	-1.719E 03	-1.561E 03	3.972E 03	4.201E 01	5.873E-02	4.201E 01	5.873E-02

READING = 0095 BLOCK = 169 TIME = 252.849 MACH 5.2 PT = 322.750 TT = 2803.2

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.465E 01	1.702E 01	1.702E 01	7.917E 02	-3.474E 03	-1.787E 03	-1.687E 03	4.289E 03	3.772E 01	5.274E-02	3.772E 01	5.274E-02
6.503E 01	1.627E 01	1.673E 01	7.917E 02	-3.506E 03	-1.800E 03	-1.706E 03	4.337E 03	3.607E 01	5.043E-02	3.707E 01	5.182E-02
6.507E 01	1.627E 01	1.669E 01	7.917E 02	-3.510E 03	-1.802E 03	-1.708E 03	4.342E 03	3.607E 01	5.043E-02	3.700E 01	5.173E-02
6.527E 01	1.529E 01	1.654E 01	7.917E 02	-3.520E 03	-1.808E 03	-1.718E 03	4.368E 03	3.388E 01	4.736E-02	3.665E 01	5.124E-02
6.693E 01	7.075E 00	6.750E 00	9.193E 02	-3.639E 03	-1.854E 03	-1.785E 03	4.583E 03	1.568E 01	2.192E-02	1.496E 01	2.091E-02
6.760E 01	5.221E 00	6.652E 00	1.049E 03	-3.676E 03	-1.866E 03	-1.809E 03	4.665E 03	1.157E 01	1.618E-02	1.474E 01	2.061E-02
6.837E 01	3.090E 00	4.990E 00	1.185E 03	-3.715E 03	-1.878E 03	-1.837E 03	4.760E 03	6.848E 00	9.574E-03	1.106E 01	1.546E-02
6.909E 01	2.454E 00	3.435E 00	1.274E 03	-3.751E 03	-1.886E 03	-1.865E 03	4.848E 03	5.439E 00	7.603E-03	7.613E 00	1.064E-02
6.970E 01	1.915E 00	2.649E 00	1.330E 03	-3.780E 03	-1.892E 03	-1.888E 03	4.922E 03	4.244E 00	5.933E-03	5.871E 00	8.208E-03
7.065E 01	1.406E 00	1.425E 00	1.388E 03	-3.817E 03	-1.901E 03	-1.917E 03	5.036E 03	3.115E 00	4.355E-03	3.158E 00	4.415E-03
7.108E 01	1.175E 00	1.451E 00	1.408E 03	-3.831E 03	-1.904E 03	-1.927E 03	5.088E 03	2.604E 00	3.641E-03	3.217E 00	4.497E-03
7.261E 01	2.077E 00	1.545E 00	1.483E 03	-3.872E 03	-1.914E 03	-1.958E 03	5.273E 03	4.602E 00	6.434E-03	3.424E 00	4.787E-03
7.276E 01	2.165E 00	1.374E 00	1.491E 03	-3.876E 03	-1.915E 03	-1.961E 03	5.290E 03	4.798E 00	6.708E-03	3.046E 00	4.258E-03
7.351E 01	1.929E 00	5.200E-01	1.537E 03	-3.895E 03	-1.919E 03	-1.976E 03	5.374E 03	4.275E 00	5.976E-03	1.152E 00	1.611E-03
7.351E 01	1.928E 00	5.154E-01	1.539E 03	-3.845E 03	-1.919E 03	-1.976E 03	5.375E 03	4.272E 00	5.972E-03	1.142E 00	1.597E-03
7.484E 01	1.510E 00	0.000	1.575E 03	-3.934E 03	-1.926E 03	-2.008E 03	5.427E 03	3.347E 00	4.679E-03	0.000	0.000
7.769E 01	1.520E 00	0.000	1.635E 03	-3.944E 03	-1.936E 03	-2.008E 03	5.525E 03	3.369E 00	4.710E-03	0.000	0.000
8.159E 01	9.750E-01	0.000	1.689E 03	-3.953E 03	-1.945E 03	-2.008E 03	5.630E 03	2.161E 00	3.021E-03	0.000	0.000
8.440E 01	9.400E-01	0.000	1.710E 03	-3.960E 03	-1.952E 03	-2.008E 03	5.684E 03	2.083E 00	2.912E-03	0.000	0.000
8.726E 01	1.280E 00	0.000	1.737E 03	-3.971E 03	-1.964E 03	-2.008E 03	5.707E 03	2.837E 00	3.966E-03	0.000	0.000
8.726E 01	1.281E 00	0.000	1.737E 03	-3.971E 03	-1.964E 03	-2.008E 03	5.707E 03	2.838E 00	3.968E-03	0.000	0.000

READING = 0095 BLOCK = 169 TIME = 252.849 MACH 5.2 PT = 322.750 TT = 2803.2

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.852E 01	9.852E 01	2.515E-03	3.755E-02
4.041E 01	1.439E-01	9.866E 01	2.804E-03	3.318E-02
4.127E 01	1.269E 01	1.114E 02	2.852E-03	4.040E-02
4.128E 01	1.361E-01	1.115E 02	2.723E-03	4.214E-02
4.135E 01	8.742E-01	1.124E 02	2.713E-03	4.277E-02
4.150E 01	2.025E 00	1.144E 02	2.742E-03	4.516E-02
4.246E 01	1.225E 01	1.266E 02	2.813E-03	4.717E-02
4.407E 01	1.802E 01	1.447E 02	2.943E-03	5.761E-02
4.431E 01	2.456E 00	1.471E 02	3.083E-03	5.467E-02
4.478E 01	4.853E 00	1.520E 02	3.081E-03	5.504E-02
4.480E 01	1.851E-01	1.521E 02	3.110E-03	5.442E-02
4.625E 01	1.519E 01	1.673E 02	3.407E-03	5.094E-02
4.626E 01	1.073E-01	1.675E 02	3.407E-03	5.094E-02
4.731E 01	1.009E 01	1.775E 02	3.009E-03	5.831E-02
4.731E 01	2.635E-02	1.776E 02	3.126E-03	5.577E-02
4.811E 01	7.119E 00	1.847E 02	3.080E-03	5.543E-02
4.875E 01	6.030E 00	1.907E 02	3.399E-03	4.734E-02
4.876E 01	9.732E-02	1.908E 02	3.077E-03	5.343E-02
4.929E 01	4.897E 00	1.957E 02	3.018E-03	5.118E-02
5.070E 01	1.258E 01	2.083E 02	2.949E-03	4.532E-02
5.280E 01	1.708E 01	2.254E 02	3.007E-03	3.902E-02
5.330E 01	4.022E 00	2.294E 02	3.138E-03	3.349E-02
5.405E 01	6.135E 00	2.355E 02	3.065E-03	3.332E-02
5.481E 01	5.896E 00	2.414E 02	3.104E-03	3.194E-02
5.576E 01	7.182E 00	2.486E 02	3.126E-03	2.965E-02
5.623E 01	2.231E 00	2.508E 02	3.102E-03	2.718E-02
5.629E 01	3.463E-01	2.512E 02	3.304E-03	2.322E-02
5.643E 01	9.174E-01	2.521E 02	3.199E-03	2.302E-02
5.651E 01	5.316E-01	2.526E 02	3.522E-03	2.306E-02
5.679E 01	1.902E 00	2.545E 02	3.511E-03	2.343E-02
5.701E 01	1.527E 00	2.561E 02	3.504E-03	2.347E-02
5.774E 01	4.641E 00	2.607E 02	3.498E-03	2.528E-02
5.876E 01	5.757E 00	2.665E 02	3.524E-03	2.666E-02
6.077E 01	1.033E 01	2.768E 02	3.519E-03	2.733E-02
6.219E 01	7.963E 00	2.848E 02	3.463E-03	2.720E-02
6.465E 01	1.483E 01	2.996E 02	3.481E-03	2.546E-02
6.503E 01	2.143E 00	3.017E 02	3.524E-03	2.419E-02
6.507E 01	2.187E-01	3.019E 02	3.599E-03	2.473E-02
6.527E 01	1.106E 00	3.030E 02	3.593E-03	2.450E-02
6.693E 01	9.240E 00	3.123E 02	3.495E-03	1.642E-02
6.760E 01	3.367E 00	3.157E 02	3.477E-03	1.493E-02
6.837E 01	3.527E 00	3.192E 02	3.430E-03	1.157E-02
6.909E 01	2.796E 00	3.220E 02	3.386E-03	9.200E-03
6.970E 01	2.033E 00	3.240E 02	3.350E-03	7.648E-03
7.065E 01	2.574E 00	3.266E 02	3.284E-03	5.392E-03
7.108E 01	9.884E-01	3.276E 02	3.272E-03	5.091E-03
7.261E 01	3.772E 00	3.314E 02	3.307E-03	6.461E-03
7.276E 01	3.835E-01	3.317E 02	3.303E-03	6.350E-03
7.351E 01	1.681E 00	3.334E 02	3.250E-03	4.806E-03
7.351E 01	2.869E-03	3.334E 02	3.250E-03	4.797E-03
7.484E 01	9.791E-01	3.344E 02	3.270E-03	5.617E-03
7.769E 01	1.969E 00	3.364E 02	3.255E-03	5.615E-03
8.159E 01	1.845E 00	3.382E 02	3.176E-03	3.978E-03
8.440E 01	8.167E-01	3.390E 02	3.157E-03	3.849E-03
8.726E 01	3.691E-01	3.394E 02	3.182E-03	4.851E-03
8.726E 01	0.000	3.394E 02	3.182E-03	4.863E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1308.	(LBF)
MEASURED THRUST	1043.	(LBF)
CALCULATED SPECIFIC IMPULSE	2179.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1737.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6202	
MEASURED THRUST COEFFICIENT	0.4944	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	5172.	(LBF)
NET THRUST	1383.	(LBF)
SPECIFIC IMPULSE	2303.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6559	

MOMENTUM AND FORCES

INLET FRICTION DRAG	98.5	(LBF)
INLET MOMENTUM CHANGE	-754.8	(LBF)
COMBUSTOR FRICTION DRAG	203.2	(LBF)
COMBUSTOR STRUT DRAG	27.71	(LBF)
COMBUSTOR MOMENTUM CHANGE	1156.	(LBF)
NOZZLE FRICTION DRAG	37.68	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	907.	(LBF)
NOZZLE PRESSURE INTEGRAL	945.	(LBF)
EXTERNAL FRICTION DRAG	46.08	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1013.	(LBF)
TOTAL EXTERNAL DRAG	-1059.	(LBF)
TOTAL STRUT DRAG	27.71	(LBF)
CAVITY FORCE	-1317.	(LBF)
CALCULATED LOAD CELL FORCE	-1068.	(LBF)
MEASURED LOAD CELL FORCE	-1333.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, -146.1, -117.6,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2869	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.171	(IN)
NOZZLE SHROUD TRAILING EDGE	73.511	(IN)
NOZZLE PLUG TRAILING EDGE	87.263	(IN)
STRUT LEADING EDGE	56.427	(IN)
STRUT TRAILING EDGE	65.027	(IN)
COMBUSTOR EXIT	65.027	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.6653	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2584	
DELTA PT2	0.1003	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4105	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2630	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8981	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9138	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9100	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8778	
ENTHALPY AT PO - SUPERSONIC	18.17	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	38.12	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0264
EQUIVALENCE RATIO	0.883
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.2475
COMBUSTOR EFFECTIVENESS	0.8903
INJECTOR DISCHARGE COEFFICIENTS	0.9797, 0.3557, 0.9260, 0.7896

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9181
NOZZLE COEFFICIENT - CT	0.8351
PROCESS EFFICIENCY	0.7730
KINETIC ENERGY EFFICIENCY	0.8121

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.272	B
1C	44.300	
2A	48.747	D
2C	46.250	E
3A	54.037	
3B	56.222	
4	44.772	

Reading 95

t = 289.75 sec.

The AIM nozzle pressures appear to be excessively high,

READING = 0095 BLOCK = 210 TIME = 289.749 MACH 5.2 PT = 308.250 TT = 2893.1
RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	308.250	2893	637.8(764)	1.2965	28.919	2539											
0.000	0.396	503	-8.2(121)	1.3989	28.919	1100	5.171	5685	1.877	0.08388	18.595	0.8655	3374	7.411	181.4		
SPIKE TIP NS		2	0 7														
0.600	14.887	2893	637.8(764)	1.2964	28.919	2539											
0.600	13.631	2835	620.4(747)	1.2982	28.919	2516	0.371	932	2.086	0.08388	18.595	0.8655	3561	1.215	191.5		
WIND TUNNEL		3	0 0														
0.000	308.250	2893	637.8(764)	1.2965	28.919	2539											
0.000	0.437	517	-4.8(124)	1.3988	28.919	1115	5.087	5670	1.877	0.08964	19.873	0.8655	3599	7.899	181.1		
SPIKE TIP NS		4	0 0														
0.600	14.887	2893	637.8(764)	1.2964	28.919	2539											
0.600	13.427	2825	617.5(744)	1.2986	28.919	2511	0.401	1008	2.086	0.08964	19.873	0.8655	3599	1.404	181.1		
INLET THROAT		5	0 4														
40.400	147.481	2795	608.3(735)	1.2996	28.919	2499											
40.400	12.830	1531	250.6(380)	1.3466	28.919	1883	2.247	4231	1.918	0.64794	19.873	0.1128	2973	45.525	149.6		
INLET UPNRSK		6	0 3														
40.400	147.481	2795	608.3(735)	1.2996	28.919	2499											
40.400	11.938	1512	245.6(375)	1.3476	28.919	1872	2.276	4260	1.918	0.62949	19.873	0.1233	3008	41.678	151.4		
INLET DNNRSK		7	0 4														
40.400	83.596	2795	608.3(735)	1.2996	28.919	2499											
40.400	70.107	2683	578.2(702)	1.3031	28.919	2452	0.525	1287	1.957	0.62949	19.873	0.1233	3008	12.593	151.4		
COMBUSTOR	0	8	1 3														
40.410	147.906	2795	608.3(735)	1.2996	28.919	2499											
40.410	13.988	1574	262.0(391)	1.3443	28.919	1907	2.183	4162	1.918	0.69236	19.873	0.1121	2972	44.785	149.6		
COMBUSTOR	0	9	2 4														
41.280	135.685	2781	604.1(731)	1.3000	28.919	2493											
41.280	14.886	1626	276.0(405)	1.3417	28.919	1936	2.093	4052	1.922	0.69440	19.873	0.1117	2929	43.726	147.4		
COMBUSTOR	0	10	3 4														
41.345	134.628	2779	603.7(731)	1.3001	28.919	2492											
41.345	14.978	1630	277.3(406)	1.3414	28.919	1939	2.084	4042	1.922	0.69479	19.873	0.1117	2925	43.638	147.2		
COMBUSTOR	0	11	4 4														
41.500	131.969	2777	602.9(730)	1.3002	28.919	2491											
41.500	15.226	1644	280.9(410)	1.3407	28.919	1947	2.062	4014	1.923	0.69580	19.873	0.1115	2914	43.404	146.6		
COMBUSTOR	0	12	5 3														
42.460	123.805	2758	597.4(724)	1.3007	28.919	2483											
42.460	15.608	1669	287.7(417)	1.3395	28.919	1960	2.008	3937	1.926	0.68896	19.873	0.1126	2882	42.148	145.0		
COMBUSTOR	0	13	6 3														
44.065	116.325	2725	587.5(715)	1.3018	28.919	2469											
44.065	15.248	1663	286.2(415)	1.3398	28.919	1957	1.984	3883	1.927	0.66621	19.873	0.1165	2853	40.205	143.6		
COMBUSTOR	0	14	7 3														
44.310	114.845	2720	586.0(713)	1.3020	28.919	2467											
44.310	15.307	1667	287.2(416)	1.3396	28.919	1959	1.974	3867	1.927	0.66460	19.873	0.1167	2846	39.940	143.2		
COMBUSTOR	0	15	8 4														
44.780	113.278	2710	583.1(710)	1.3023	28.919	2463											
44.780	15.313	1666	287.0(416)	1.3397	28.919	1959	1.965	3849	1.927	0.66202	19.873	0.1172	2837	39.603	142.8		
COMBUSTOR	0	16	9 4														
44.800	113.225	2709	583.0(710)	1.3023	28.919	2463											
44.800	15.302	1666	286.9(416)	1.3397	28.919	1959	1.965	3849	1.927	0.66167	19.873	0.1173	2837	39.581	142.8		
COMBUSTOR	0	17	10 6														
46.250	72.049	2814	593.6(862)	1.3007	24.783	2709											
46.250	30.668	2299	419.0(689)	1.3180	24.783	2466	1.199	2956	2.241	0.63229	20.150	0.1244	2828	29.044	140.4	0.44	0.17
COMBUSTOR	0	18	11 2														
46.260	71.995	2816	593.6(863)	1.3005	24.786	2710											
46.260	30.742	2303	419.4(691)	1.3179	24.786	2467	1.196	2952	2.241	0.63197	20.150	0.1245	2829	28.992	140.4	0.44	0.17

READING = 0095 BLOCK = 210 TIME = 289.749 MACH 5.2 PT = 308.250 TT = 2893.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.305	67.804	3084	587.6(950)	1.2878	25.073	2806											
47.305	38.534	2713	457.9(823)	1.3003	25.074	2645	0.963	2547	2.267	0.58709	20.150	0.1340	2918	23.240	144.8	0.44	0.31
COMBUSTOR	0	20	13 2														
47.310	67.871	3079	587.5(948)	1.2880	25.068	2805											
47.310	38.527	2707	457.8(821)	1.3006	25.069	2643	0.964	2548	2.267	0.58815	20.150	0.1338	2916	23.287	144.7	0.44	0.30
COMBUSTOR	0	21	14 4														
48.110	65.151	3276	583.3(1013)	1.2782	25.286	2869											
48.110	37.271	2895	448.0(882)	1.2915	25.288	2711	0.960	2602	2.283	0.54818	20.150	0.1435	2999	22.164	148.9	0.44	0.41
COMBUSTOR	0	22	15 8														
48.745	61.798	2852	597.5(988)	1.3010	21.908	2902											
48.745	28.059	2366	411.1(803)	1.3175	21.908	2660	1.148	3054	2.493	0.51342	20.409	0.1552	3053	24.369	149.6	0.85	0.16
COMBUSTOR	0	23	16 2														
48.755	61.767	2853	597.5(988)	1.3009	21.910	2902											
48.755	27.969	2366	410.4(803)	1.3175	21.910	2660	1.150	3060	2.493	0.51275	20.409	0.1554	3054	24.381	149.6	0.85	0.16
COMBUSTOR	0	24	17 3														
49.285	60.653	2900	595.4(1005)	1.2987	21.955	2920											
49.285	23.225	2312	369.7(782)	1.3188	21.955	2628	1.279	3360	2.499	0.47955	20.409	0.1662	3120	25.040	152.9	0.85	0.18
COMBUSTOR	0	25	18 5														
50.695	52.892	3364	589.2(1177)	1.2759	22.391	3087											
50.695	25.087	2852	383.8(978)	1.2940	22.394	2862	1.120	3206	2.549	0.40870	20.409	0.1950	3286	20.361	161.0	0.85	0.32
COMBUSTOR	0	26	19 5														
52.795	47.432	3745	575.6(1326)	1.2539	22.681	3208											
52.795	19.600	3111	310.8(1075)	1.2790	22.694	2952	1.233	3640	2.593	0.33688	20.525	0.2379	3516	19.058	171.3	0.86	0.43
COMBUSTOR	0	27	20 4														
53.295	46.117	3856	573.3(1368)	1.2469	22.797	3238											
53.295	19.133	3218	302.6(1114)	1.2731	22.816	2988	1.232	3680	2.601	0.32311	20.525	0.2480	3563	18.479	173.6	0.86	0.47
COMBUSTOR	0	28	21 4														
54.045	44.873	3956	569.8(1406)	1.2400	22.908	3263											
54.045	17.453	3269	274.5(1132)	1.2694	22.934	2999	1.282	3844	2.609	0.30457	20.525	0.2631	3628	18.194	176.8	0.86	0.50
COMBUSTOR	0	29	22 4														
54.805	43.974	4021	566.4(1431)	1.2354	22.982	3278											
54.805	15.750	3274	243.3(1132)	1.2680	23.015	2995	1.342	4020	2.613	0.28802	20.525	0.2782	3687	17.994	179.6	0.86	0.53
COMBUSTOR	0	30	23 4														
55.760	42.780	4103	562.0(1462)	1.2293	23.079	3296											
55.760	14.255	3305	212.5(1142)	1.2652	23.121	2998	1.395	4182	2.619	0.26990	20.525	0.2969	3752	17.541	182.8	0.86	0.56
COMBUSTOR	0	31	24 5														
56.230	35.192	4627	559.9(1663)	1.1847	23.650	3395											
56.230	13.519	3969	215.6(1393)	1.2191	23.808	3179	1.306	4151	2.656	0.21783	20.525	0.3679	3922	14.052	191.1	0.86	0.76
COMBUSTOR	0	32	25 5														
56.285	37.629	4363	559.7(1562)	1.2079	23.362	3349											
56.285	11.016	3481	151.2(1205)	1.2522	23.453	3040	1.487	4521	2.641	0.21717	20.525	0.3690	3925	15.260	191.3	0.86	0.65
COMBUSTOR	0	33	26 3														
56.425	37.541	4373	559.1(1565)	1.2071	23.373	3351											
56.425	10.907	3486	147.5(1207)	1.2517	23.467	3040	1.493	4538	2.642	0.21565	20.525	0.3716	3933	15.210	191.6	0.86	0.66
COMBUSTOR	0	34	27 6														
56.505	35.786	4616	558.8(1659)	1.1860	23.640	3393											
56.505	13.088	3920	199.2(1373)	1.2225	23.797	3164	1.341	4242	2.654	0.21811	20.525	0.3674	3938	14.379	191.9	0.86	0.75
COMBUSTOR	0	35	28 3														
56.785	36.197	4603	557.7(1654)	1.1872	23.629	3391											
56.785	12.650	3873	184.3(1355)	1.2256	23.784	3150	1.372	4323	2.653	0.21731	20.525	0.3688	3953	14.599	192.6	0.86	0.75
COMBUSTOR	0	36	29 4														
57.011	37.485	4496	556.9(1612)	1.1968	23.513	3373											
57.011	11.532	3660	151.9(1272)	1.2403	23.639	3090	1.457	4502	2.646	0.21698	20.525	0.3693	3963	15.179	193.1	0.86	0.70
COMBUSTOR	0	37	30 6														
57.735	45.310	4016	554.3(1428)	1.2356	23.006	3275											
57.735	7.950	2801	45.4(949)	1.2855	23.043	2787	1.810	5046	2.609	0.21353	20.525	0.3753	3983	16.745	194.1	0.86	0.53

READING = 0095 BLOCK = 210 TIME = 289.749 MACH 5.2 PT = 306.250 TT = 2893.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58.755	40.537	4291	550.8(1533)	1.2143	23.306	3334											
58.755	9.412	3246	83.5(1114)	1.2639	23.384	2953	1.637	4835	2.630	0.21217	20.525	0.3777	3995	15.944	194.7	0.86	0.63
COMBUSTOR	0	39	32 5														
60.765	36.070	4787	543.9(1724)	1.1708	23.868	3417											
60.765	14.025	4171	193.3(1468)	1.2005	24.090	3215	1.303	4189	2.656	0.21956	20.525	0.3658	3983	14.292	194.1	0.86	0.85
COMBUSTOR	0	40	33 4														
62.185	35.973	4912	538.8(1772)	1.1598	24.020	3434											
62.185	16.294	4429	234.4(1569)	1.1785	24.273	3270	1.194	3903	2.657	0.22551	20.525	0.3553	3973	13.678	193.6	0.86	0.92
COMBUSTOR	0	41	34 4														
64.649	33.694	4917	528.8(1774)	1.1578	24.051	3430											
64.649	16.129	4476	244.4(1588)	1.1739	24.299	3279	1.151	3772	2.661	0.21376	20.525	0.3749	3955	12.531	192.7	0.86	0.94
COMBUSTOR	0	42	35 4														
65.025	31.085	4961	527.0(1790)	1.1526	24.104	3434											
65.025	16.102	4583	269.6(1630)	1.1639	24.354	3300	1.088	3589	2.667	0.19872	20.525	0.4032	3953	11.084	192.6	0.86	0.97
COMBUSTOR	REGEN	43	36 21														
65.025	31.085	5050	610.3(1830)	1.1487	23.988	3467											
65.025	12.676	4546	256.4(1616)	1.1624	24.348	3285	1.281	4208	2.683	0.19872	20.525	0.4032	3994	12.997	194.6	0.86	0.97
NOZZLE AE		44	37 4														
87.261	31.085	4961	527.0(1746)	1.1526	24.104	3434											
87.261	0.995	2845	-567.2(936)	1.2637	24.703	2690	2.751	7400	2.667	0.04137	20.525	1.9372	5214	4.757	254.0	0.86	0.97
NOZZLE PO		45	38 4														
87.261	31.085	4961	527.0(1746)	1.1526	24.104	3434											
87.261	0.437	2385	-740.2(765)	1.2810	24.706	2480	3.211	7963	2.667	0.02330	20.525	3.4393	5465	2.883	266.2	0.86	0.97
NOZZLE AE REGEN		46	39 4														
87.261	31.085	5050	610.3(1830)	1.1487	23.988	3467											
87.261	1.035	2993	-509.5(992)	1.2572	24.701	2752	2.720	7486	2.683	0.04136	20.525	1.9373	5289	4.812	257.7	0.86	0.97
NOZZLE PO REGEN		47	40 4														
87.261	31.085	5050	610.3(1830)	1.1487	23.988	3467											
87.261	0.437	2495	-699.7(805)	1.2769	24.705	2532	3.197	8096	2.683	0.02264	20.525	3.5388	5561	2.849	270.9	0.86	0.97
FICTIVE COMBUSTR		67	60 0														
65.025	147.481	5171	527.0(1873)	1.1649	24.339	3508											
65.025	0.437	1705	-1019.3(523)	1.3097	24.817	2115	4.159	8797	2.538	0.03617	20.525	2.2152	5859	4.945	285.5	0.86	1.00
FICTIVE NOZZLE		68	61 0														
87.261	131.505	5067	493.9(1831)	1.1693	24.309	3481											
87.261	0.530	1751	-965.0(540)	1.3085	24.706	2147	3.980	8544	2.542	0.04137	20.525	1.9371	5714	5.493	278.4	0.86	0.97

READING = 0095 BLOCK = 210 TIME = 289.749 MACH 5.2 PT = 308.250 TT = 2893.1 PAGE 4

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OR	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	9.900E-01	0.000	-3.649E-01	0.000	0.000	0.000	2.470E-02	2.268E 00	3.212E-03	0.000	0.000
1.836E 01	9.900E-01	0.000	-3.291E 01	0.000	0.000	0.000	1.634E 02	2.268E 00	3.212E-03	0.000	0.000
3.070E 01	1.850E 00	0.000	-1.480E 02	0.000	0.000	0.000	5.053E 02	4.238E 00	6.002E-03	0.000	0.000
3.508E 01	3.091E 00	0.000	-3.081E 02	0.000	0.000	0.000	6.804E 02	7.080E 00	1.003E-02	0.000	0.000
3.516E 01	3.119E 00	4.469E 00	-3.570E 02	0.000	0.000	0.000	6.841E 02	7.145E 00	1.012E-02	1.024E 01	1.450E-02
3.517E 01	3.121E 00	4.454E 00	-3.570E 02	0.000	0.000	0.000	6.843E 02	7.149E 00	1.012E-02	1.020E 01	1.445E-02
3.555E 01	3.250E 00	3.536E 00	-3.629E 02	0.000	0.000	0.000	7.225E 02	7.445E 00	1.054E-02	8.101E 00	1.147E-02
3.583E 01	3.228E 00	2.850E 00	-3.712E 02	-2.869E 02	-2.869E 02	0.000	7.515E 02	7.394E 00	1.047E-02	6.529E 00	9.246E-03
3.606E 01	3.210E 00	3.841E 00	-3.778E 02	-2.906E 02	-2.906E 02	0.000	7.745E 02	7.354E 00	1.041E-02	8.798E 00	1.246E-02
3.648E 01	3.609E 00	5.689E 00	-3.870E 02	-2.978E 02	-2.978E 02	0.000	8.183E 02	8.269E 00	1.171E-02	1.303E 01	1.846E-02
3.701E 01	3.360E 00	8.021E 00	-3.980E 02	-3.479E 02	-3.072E 02	-4.077E 01	8.743E 02	7.697E 00	1.090E-02	1.838E 01	2.602E-02
3.729E 01	4.336E 00	9.275E 00	-4.040E 02	-3.654E 02	-3.124E 02	-5.298E 01	9.048E 02	9.934E 00	1.407E-02	2.125E 01	3.009E-02
3.803E 01	6.855E 00	1.114E 01	-4.449E 02	-4.107E 02	-3.267E 02	-8.396E 01	9.851E 02	1.570E 01	2.224E-02	2.552E 01	3.614E-02
3.831E 01	8.943E 00	1.186E 01	-4.647E 02	-4.288E 02	-3.329E 02	-9.591E 01	1.017E 03	2.049E 01	2.901E-02	2.718E 01	3.848E-02
3.875E 01	1.213E 01	1.217E 01	-5.010E 02	-4.578E 02	-3.437E 02	-1.141E 02	1.066E 03	2.779E 01	3.936E-02	2.789E 01	3.950E-02
3.878E 01	1.239E 01	1.220E 01	-5.039E 02	-4.602E 02	-3.446E 02	-1.156E 02	1.070E 03	2.838E 01	4.019E-02	2.795E 01	3.958E-02
3.901E 01	1.404E 01	1.319E 01	-5.202E 02	-4.760E 02	-3.511E 02	-1.249E 02	1.096E 03	3.216E 01	4.554E-02	3.021E 01	4.278E-02
3.929E 01	1.370E 01	1.444E 01	-5.362E 02	-4.968E 02	-3.600E 02	-1.368E 02	1.129E 03	3.138E 01	4.443E-02	3.307E 01	4.684E-02
3.950E 01	1.345E 01	1.434E 01	-5.426E 02	-5.122E 02	-3.670E 02	-1.452E 02	1.152E 03	3.081E 01	4.363E-02	3.285E 01	4.651E-02
3.978E 01	1.454E 01	1.420E 01	-5.483E 02	-5.345E 02	-3.776E 02	-1.568E 02	1.185E 03	3.331E 01	4.717E-02	3.253E 01	4.607E-02
4.000E 01	1.536E 01	1.419E 01	-5.531E 02	-5.518E 02	-3.863E 02	-1.655E 02	1.211E 03	3.519E 01	4.984E-02	3.251E 01	4.604E-02
4.040E 01	1.766E 01	1.418E 01	-5.627E 02	-5.852E 02	-4.037E 02	-1.814E 02	1.257E 03	4.045E 01	5.728E-02	3.248E 01	4.599E-02
4.041E 01	1.771E 01	1.418E 01	-5.629E 02	-5.860E 02	-4.042E 02	-1.818E 02	1.259E 03	4.058E 01	5.746E-02	3.248E 01	4.599E-02
4.128E 01	2.270E 01	1.414E 01	-5.951E 02	-6.688E 02	-4.465E 02	-2.223E 02	1.362E 03	5.200E 01	7.364E-02	3.240E 01	4.589E-02
4.134E 01	2.307E 01	1.414E 01	-5.982E 02	-6.757E 02	-4.499E 02	-2.258E 02	1.369E 03	5.286E 01	7.485E-02	3.240E 01	4.588E-02
4.150E 01	2.396E 01	1.407E 01	-6.068E 02	-6.924E 02	-4.583E 02	-2.341E 02	1.388E 03	5.489E 01	7.774E-02	3.223E 01	4.564E-02
4.246E 01	1.451E 01	1.362E 01	-6.266E 02	-8.018E 02	-5.132E 02	-2.886E 02	1.503E 03	3.325E 01	4.708E-02	3.120E 01	4.418E-02
4.406E 01	1.860E 01	1.286E 01	-6.341E 02	-9.978E 02	-6.073E 02	-3.905E 02	1.697E 03	4.261E 01	6.035E-02	2.947E 01	4.173E-02
4.431E 01	1.923E 01	1.499E 01	-6.381E 02	-1.028E 03	-6.213E 02	-4.070E 02	1.727E 03	4.405E 01	6.237E-02	3.433E 01	4.862E-02
4.478E 01	2.042E 01	1.906E 01	-6.412E 02	-1.086E 03	-6.480E 02	-4.379E 02	1.784E 03	4.679E 01	6.626E-02	4.367E 01	6.184E-02
4.480E 01	2.047E 01	1.923E 01	-6.411E 02	-1.088E 03	-6.492E 02	-4.392E 02	1.786E 03	4.691E 01	6.642E-02	4.406E 01	6.240E-02
4.625E 01	2.953E 01	3.181E 01	-5.910E 02	-1.261E 03	-7.290E 02	-5.323E 02	1.965E 03	6.765E 01	9.580E-02	7.286E 01	1.032E-01
4.626E 01	2.959E 01	3.189E 01	-5.904E 02	-1.262E 03	-7.295E 02	-5.329E 02	1.966E 03	6.779E 01	9.600E-02	7.306E 01	1.035E-01
4.730E 01	3.612E 01	4.095E 01	-4.912E 02	-1.384E 03	-7.845E 02	-5.991E 02	2.095E 03	8.274E 01	1.172E-01	9.381E 01	1.328E-01
4.731E 01	3.615E 01	4.090E 01	-4.934E 02	-1.384E 03	-7.848E 02	-5.994E 02	2.096E 03	8.281E 01	1.173E-01	9.371E 01	1.327E-01
4.811E 01	4.080E 01	3.374E 01	-4.022E 02	-1.470E 03	-8.256E 02	-6.445E 02	2.196E 03	9.347E 01	1.324E-01	7.730E 01	1.095E-01
4.874E 01	2.806E 01	2.806E 01	-3.124E 02	-1.530E 03	-8.572E 02	-6.724E 02	2.275E 03	6.428E 01	9.103E-02	6.428E 01	9.103E-02
4.875E 01	2.797E 01	2.797E 01	-3.109E 02	-1.530E 03	-8.576E 02	-6.728E 02	2.276E 03	6.407E 01	9.074E-02	6.407E 01	9.074E-02
4.928E 01	2.322E 01	2.322E 01	-2.402E 02	-1.574E 03	-8.834E 02	-6.906E 02	2.343E 03	5.321E 01	7.534E-02	5.321E 01	7.534E-02
5.069E 01	2.509E 01	2.509E 01	-6.161E 01	-1.700E 03	-9.495E 02	-7.506E 02	2.521E 03	5.747E 01	8.139E-02	5.747E 01	8.139E-02
5.279E 01	1.960E 01	1.960E 01	1.844E 02	-1.911E 03	-1.041E 03	-8.693E 02	2.787E 03	4.490E 01	6.358E-02	4.490E 01	6.358E-02
5.329E 01	1.913E 01	1.913E 01	2.348E 02	-1.959E 03	-1.062E 03	-8.970E 02	2.851E 03	4.383E 01	6.207E-02	4.383E 01	6.207E-02
5.404E 01	1.745E 01	1.745E 01	3.055E 02	-2.030E 03	-1.092E 03	-9.379E 02	2.946E 03	3.998E 01	5.662E-02	3.998E 01	5.662E-02
5.480E 01	1.575E 01	1.575E 01	3.699E 02	-2.102E 03	-1.122E 03	-9.798E 02	3.044E 03	3.608E 01	5.109E-02	3.608E 01	5.109E-02
5.576E 01	1.425E 01	1.425E 01	4.417E 02	-2.191E 03	-1.158E 03	-1.033E 03	3.167E 03	3.266E 01	4.624E-02	3.266E 01	4.624E-02
5.623E 01	1.352E 01	1.352E 01	6.141E 02	-2.233E 03	-1.173E 03	-1.060E 03	3.209E 03	3.097E 01	4.386E-02	3.097E 01	4.386E-02
5.628E 01	8.600E 00	1.343E 01	6.179E 02	-2.237E 03	-1.174E 03	-1.063E 03	3.217E 03	1.970E 01	2.790E-02	3.077E 01	4.358E-02
5.642E 01	8.600E 00	1.321E 01	6.266E 02	-2.249E 03	-1.178E 03	-1.070E 03	3.234E 03	1.970E 01	2.790E-02	3.027E 01	4.287E-02
5.650E 01	1.309E 01	1.309E 01	6.319E 02	-2.255E 03	-1.180E 03	-1.075E 03	3.245E 03	2.998E 01	4.246E-02	2.998E 01	4.246E-02
5.678E 01	1.265E 01	1.265E 01	6.487E 02	-2.278E 03	-1.188E 03	-1.090E 03	3.280E 03	2.898E 01	4.104E-02	2.898E 01	4.104E-02
5.701E 01	1.153E 01	1.153E 01	6.604E 02	-2.295E 03	-1.193E 03	-1.102E 03	3.309E 03	2.642E 01	3.741E-02	2.642E 01	3.741E-02
5.773E 01	7.950E 00	7.950E 00	6.868E 02	-2.349E 03	-1.211E 03	-1.137E 03	3.402E 03	1.821E 01	2.579E-02	1.821E 01	2.579E-02
5.875E 01	9.412E 00	9.412E 00	7.069E 02	-2.420E 03	-1.235E 03	-1.185E 03	3.532E 03	2.156E 01	3.054E-02	2.156E 01	3.054E-02
6.076E 01	1.402E 01	1.402E 01	7.097E 02	-2.562E 03	-1.278E 03	-1.284E 03	3.790E 03	3.213E 01	4.550E-02	3.213E 01	4.550E-02
6.218E 01	1.629E 01	1.629E 01	7.097E 02	-2.666E 03	-1.312E 03	-1.355E 03	3.972E 03	3.733E 01	5.286E-02	3.733E 01	5.286E-02
6.465E 01	1.613E 01	1.613E 01	7.097E 02	-2.873E 03	-1.392E 03	-1.480E 03	4.289E 03	3.695E 01	5.232E-02	3.695E 01	5.232E-02

READING = 0095 BLOCK = 210 TIME = 289.749 MACH 5.2 PT = 308.250 TT = 2893.1

XABS	P-IB	P-OB	PDA	GOX	Q-IB	Q-OH	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.502E 01	1.610E 01	1.610E 01	7.097E 02	-2.908E 03	-1.407E 03	-1.501E 03	4.337E 03	3.688E 01	5.223E-02	3.689E 01	5.224E-02
6.506E 01	1.610E 01	1.610E 01	7.097E 02	-2.912E 03	-1.409E 03	-1.503E 03	4.342E 03	3.688E 01	5.223E-02	3.688E 01	5.223E-02
6.526E 01	1.511E 01	1.609E 01	7.097E 02	-2.929E 03	-1.417E 03	-1.513E 03	4.368E 03	3.463E 01	4.903E-02	3.685E 01	5.219E-02
6.692E 01	6.937E 00	6.575E 00	8.345E 02	-3.048E 03	-1.468E 03	-1.580E 03	4.583E 03	1.589E 01	2.251E-02	1.506E 01	2.133E-02
6.759E 01	5.129E 00	6.352E 00	9.609E 02	-3.082E 03	-1.482E 03	-1.601E 03	4.665E 03	1.175E 01	1.664E-02	1.455E 01	2.061E-02
6.836E 01	3.050E 00	4.827E 00	1.093E 03	-3.118E 03	-1.494E 03	-1.624E 03	4.760E 03	6.987E 00	9.895E-03	1.106E 01	1.566E-02
6.908E 01	2.495E 00	3.400E 00	1.180E 03	-3.149E 03	-1.504E 03	-1.645E 03	4.848E 03	5.716E 00	8.094E-03	7.789E 00	1.103E-02
6.969E 01	2.025E 00	2.882E 00	1.238E 03	-3.174E 03	-1.511E 03	-1.663E 03	4.922E 03	4.639E 00	6.569E-03	6.602E 00	9.349E-03
7.064E 01	1.946E 00	2.075E 00	1.309E 03	-3.208E 03	-1.522E 03	-1.686E 03	5.036E 03	4.458E 00	6.313E-03	4.754E 00	6.732E-03
7.107E 01	1.910E 00	2.810E 00	1.340E 03	-3.221E 03	-1.527E 03	-1.695E 03	5.088E 03	4.376E 00	6.196E-03	6.437E 00	9.116E-03
7.260E 01	3.768E 00	5.425E 00	1.502E 03	-3.270E 03	-1.543E 03	-1.727E 03	5.273E 03	8.632E 00	1.222E-02	1.243E 01	1.760E-02
7.275E 01	3.950E 00	5.406E 00	1.522E 03	-3.274E 03	-1.544E 03	-1.730E 03	5.290E 03	9.049E 00	1.281E-02	1.238E 01	1.754E-02
7.350E 01	3.894E 00	5.310E 00	1.686E 03	-3.302E 03	-1.552E 03	-1.750E 03	5.374E 03	8.921E 00	1.263E-02	1.216E 01	1.723E-02
7.351E 01	3.894E 00	5.309E 00	1.696E 03	-3.302E 03	-1.552E 03	-1.750E 03	5.375E 03	8.920E 00	1.263E-02	1.216E 01	1.722E-02
7.483E 01	3.795E 00	0.000	1.777E 03	-3.356E 03	-1.565E 03	-1.791E 03	5.427E 03	8.694E 00	1.231E-02	0.800	0.000
7.768E 01	4.470E 00	0.000	1.943E 03	-3.457E 03	-1.592E 03	-1.865E 03	5.525E 03	1.024E 01	1.450E-02	0.800	0.000
8.158E 01	6.775E 00	0.000	2.183E 03	-3.493E 03	-1.627E 03	-1.865E 03	5.630E 03	1.552E 01	2.198E-02	0.800	0.000
8.439E 01	7.330E 00	0.000	2.340E 03	-3.528E 03	-1.663E 03	-1.865E 03	5.684E 03	1.679E 01	2.378E-02	0.800	0.000
8.725E 01	7.405E 00	0.000	2.517E 03	-3.508E 03	-1.723E 03	-1.865E 03	5.707E 03	1.696E 01	2.402E-02	0.800	0.000
8.726E 01	7.405E 00	0.000	2.517E 03	-3.588E 03	-1.723E 03	-1.865E 03	5.707E 03	1.696E 01	2.402E-02	0.800	0.000

READING = 0095 BLOCK = 210 TIME = 289.749 MACH 5.2 PT = 308.250 TT = 2893.1

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.011E 02	1.011E 02	2.473E-03	3.396E-02
4.041E 01	1.322E-01	1.012E 02	2.486E-03	3.663E-02
4.128E 01	1.144E 01	1.127E 02	2.541E-03	3.776E-02
4.134E 01	8.592E-01	1.135E 02	2.546E-03	3.787E-02
4.150E 01	2.052E 00	1.156E 02	2.559E-03	3.818E-02
4.246E 01	1.265E 01	1.282E 02	2.589E-03	3.834E-02
4.406E 01	2.075E 01	1.490E 02	2.599E-03	3.723E-02
4.431E 01	3.104E 00	1.521E 02	2.605E-03	3.723E-02
4.478E 01	5.947E 00	1.580E 02	2.610E-03	3.716E-02
4.480E 01	2.545E-01	1.583E 02	2.610E-03	3.714E-02
4.625E 01	1.827E 01	1.766E 02	3.367E-03	4.666E-02
4.626E 01	1.166E-01	1.767E 02	3.054E-03	5.267E-02
4.730E 01	1.039E 01	1.871E 02	3.092E-03	5.521E-02
4.731E 01	5.260E-02	1.871E 02	3.220E-03	5.240E-02
4.811E 01	7.250E 00	1.944E 02	3.180E-03	5.160E-02
4.874E 01	6.179E 00	2.006E 02	3.505E-03	4.265E-02
4.875E 01	1.007E-01	2.007E 02	3.090E-03	4.994E-02
4.928E 01	5.016E 00	2.057E 02	3.017E-03	4.619E-02
5.069E 01	1.210E 01	2.178E 02	2.987E-03	4.558E-02
5.279E 01	1.588E 01	2.337E 02	3.063E-03	3.726E-02
5.329E 01	3.747E 00	2.374E 02	3.203E-03	3.456E-02
5.404E 01	5.628E 00	2.430E 02	3.203E-03	3.248E-02
5.480E 01	5.642E 00	2.487E 02	3.201E-03	3.035E-02
5.576E 01	6.963E 00	2.556E 02	3.184E-03	2.841E-02
5.623E 01	2.149E 00	2.578E 02	3.152E-03	2.574E-02
5.628E 01	3.355E-01	2.581E 02	3.346E-03	2.178E-02
5.642E 01	8.886E-01	2.590E 02	3.218E-03	2.244E-02
5.650E 01	5.097E-01	2.595E 02	3.514E-03	2.272E-02
5.678E 01	1.769E 00	2.613E 02	3.331E-03	2.346E-02
5.701E 01	1.424E 00	2.627E 02	3.304E-03	2.252E-02
5.773E 01	4.813E 00	2.675E 02	3.207E-03	1.848E-02
5.875E 01	6.595E 00	2.741E 02	2.967E-03	2.190E-02
6.076E 01	1.194E 01	2.861E 02	3.160E-03	2.581E-02
6.218E 01	8.335E 00	2.944E 02	3.383E-03	2.576E-02
6.465E 01	1.419E 01	3.086E 02	3.468E-03	2.442E-02
6.502E 01	1.992E 00	3.106E 02	3.527E-03	2.329E-02
6.506E 01	2.033E-01	3.108E 02	3.618E-03	2.363E-02
6.526E 01	1.037E 00	3.118E 02	3.612E-03	2.347E-02
6.692E 01	8.783E 00	3.206E 02	3.506E-03	1.589E-02
6.789E 01	3.234E 00	3.238E 02	3.487E-03	1.437E-02
6.836E 01	3.394E 00	3.272E 02	3.439E-03	1.121E-02
6.908E 01	2.719E 00	3.299E 02	3.397E-03	9.159E-03
6.969E 01	2.032E 00	3.320E 02	3.370E-03	8.027E-03
7.064E 01	2.835E 00	3.348E 02	3.339E-03	6.935E-03
7.107E 01	1.274E 00	3.361E 02	3.358E-03	7.786E-03
7.260E 01	5.582E 00	3.417E 02	3.434E-03	1.234E-02
7.275E 01	6.078E-01	3.423E 02	3.435E-03	1.248E-02
7.350E 01	2.978E 00	3.453E 02	3.428E-03	1.233E-02
7.351E 01	5.684E-03	3.453E 02	3.428E-03	1.233E-02
7.483E 01	1.744E 00	3.470E 02	3.395E-03	1.080E-02
7.768E 01	3.268E 00	3.503E 02	3.396E-03	1.199E-02
8.158E 01	3.882E 00	3.542E 02	3.418E-03	1.550E-02
8.439E 01	2.179E 00	3.563E 02	3.412E-03	1.617E-02
8.725E 01	9.129E-01	3.572E 02	3.399E-03	1.619E-02
8.726E 01	0.000	3.572E 02	3.399E-03	1.619E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2077.	(LBF)
MEASURED THRUST	1833.	(LBF)
CALCULATED SPECIFIC IMPULSE	3769.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3327.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	1.0266	
MEASURED THRUST COEFFICIENT	0.9060	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5795.	(LBF)
NET THRUST	2159.	(LBF)
SPECIFIC IMPULSE	3917.	(LBF-SEC/LBM)
THRUST COEFFICIENT	1.0670	

MOMENTUM AND FORCES

INLET FRICTION DRAG	101.1	(LBF)
INLET MOMENTUM CHANGE	-663.8	(LBF)
COMBUSTOR FRICTION DRAG	209.5	(LBF)
COMBUSTOR STRUT DRAG	12.20	(LBF)
COMBUSTOR MOMENTUM CHANGE	980.	(LBF)
NOZZLE FRICTION DRAG	46.67	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1761.	(LBF)
NOZZLE PRESSURE INTEGRAL	1808.	(LBF)
EXTERNAL FRICTION DRAG	64.38	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1646.	(LBF)
TOTAL EXTERNAL DRAG	-1712.	(LBF)
TOTAL STRUT DRAG	12.20	(LBF)
CAVITY FORCE	-1571.	(LBF)
CALCULATED LOAD CELL FORCE	-1207.	(LBF)
MEASURED LOAD CELL FORCE	-1451.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE -145.9, -116.9,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2849	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	87.261	(IN)
STRUT LEADING EDGE	56.425	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	65.025	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8655	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2668	
DELTA PT2	0.0918	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4784	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2712	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9113	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9164	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9189	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8787	
ENTHALPY AT PO - SUPERSONIC	17.86	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	43.70	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0276
EQUIVALENCE RATIO	0.858
COMBUSTOR EFFICIENCY	0.973
TOTAL PRESSURE RATIO	0.2108
COMBUSTOR EFFECTIVENESS	0.8625
INJECTOR DISCHARGE COEFFICIENTS	0.8504, 0.7733,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0958
NOZZLE COEFFICIENT - CT	1.0059
PROCESS EFFICIENCY	1.2705
KINETIC ENERGY EFFICIENCY	1.1869

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.270	
1C	44.300	
2A	48.745	D
2C	46.250	E
3A	54.035	
3B	56.220	
4	44.770	

Reading 95

t = 310.45 sec.

RAMJET PERFORMANCE

1-27-75
Reg. Corrected.

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	B	W/A		A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4															
0.000	416.249	2225	442.5(	571)	1.3182	28.919	2246											
0.000	0.584	375	-39.0(	90)	1.3964	28.919	949	5.170	4908	1.780	0.14300	31.702	0.8655	4966	10.908	156.6		
SPIKE TIP MB		2	0 6															
0.600	21.087	2225	442.5(	571)	1.3183	28.919	2246											
0.600	19.079	2172	427.3(	556)	1.3201	28.919	2220	0.392	870	1.985	0.14300	31.702	0.8655	5087	1.933	160.5		
WIND TUNNEL		3	0 0															
0.000	416.249	2225	442.5(	571)	1.3182	28.919	2246											
0.000	0.610	380	-37.9(	91)	1.3985	28.919	955	5.132	4903	1.780	0.14738	32.671	0.8655	5114	11.226	156.5		
SPIKE TIP MB		4	0 0															
0.600	21.087	2225	442.5(	571)	1.3183	28.919	2246											
0.600	18.936	2168	426.2(	555)	1.3202	28.919	2218	0.406	902	1.985	0.14738	32.671	0.8655	5113	2.065	156.5		
INLET THROAT		5	0 4															
40.400	184.812	2172	427.2(	556)	1.3201	28.919	2220											
40.400	20.714	1245	175.6(	305)	1.3635	28.919	1709	2.077	3548	1.829	1.10462	32.671	0.1120	4198	62.774	128.5		
INLET UPNRSK		6	0 3															
40.400	184.812	2172	427.2(	556)	1.3201	28.919	2220											
40.400	16.473	1208	166.0(	295)	1.3659	28.919	1684	2.147	3616	1.829	1.03491	32.671	0.1233	4255	58.151	130.2		
INLET DNNRSK		7	0 4															
40.400	117.173	2172	427.2(	556)	1.3201	28.919	2220											
40.400	96.630	2072	399.1(	528)	1.3236	28.919	2171	0.546	1186	1.860	1.03491	32.671	0.1233	4255	19.073	130.2		
COMBUSTOR	0	8	1 4															
40.410	184.617	2172	427.2(	556)	1.3201	28.919	2220											
40.410	21.869	1264	180.4(	309)	1.3623	28.919	1720	2.043	3514	1.829	1.13827	32.671	0.1121	4196	62.168	128.4		
COMBUSTOR	0	9	2 4															
41.280	155.423	2165	425.2(	554)	1.3203	28.919	2217											
41.280	25.366	1370	208.2(	337)	1.3558	28.919	1787	1.844	3296	1.840	1.14162	32.671	0.1117	4073	58.470	124.7		
COMBUSTOR	0	10	3 4															
41.345	153.509	2164	425.1(	554)	1.3203	28.919	2216											
41.345	25.680	1379	210.4(	339)	1.3553	28.919	1792	1.828	3277	1.841	1.14227	32.671	0.1117	4063	58.180	124.3		
COMBUSTOR	0	11	4 4															
41.500	149.144	2163	424.7(	553)	1.3204	28.919	2216											
41.500	26.450	1399	215.7(	345)	1.3541	28.919	1805	1.792	3233	1.843	1.14394	32.671	0.1115	4039	57.483	123.6		
COMBUSTOR	0	12	5 5															
42.460	134.512	2153	422.0(	551)	1.3207	28.919	2211											
42.460	28.696	1461	232.1(	361)	1.3505	28.919	1842	1.673	3082	1.848	1.13269	32.671	0.1126	3958	54.256	121.1		
COMBUSTOR	0	13	6 4															
44.065	122.670	2135	416.8(	546)	1.3214	28.919	2202											
44.065	29.390	1492	240.3(	369)	1.3487	28.919	1860	1.598	2971	1.852	1.09528	32.671	0.1165	3894	50.579	119.2		
COMBUSTOR	0	14	7 5															
44.310	120.555	2131	415.8(	545)	1.3215	28.919	2201											
44.310	29.809	1502	242.9(	372)	1.3482	28.919	1866	1.577	2942	1.853	1.09264	32.671	0.1167	3879	49.951	118.7		
COMBUSTOR	0	15	8 6															
44.780	116.974	2124	413.7(	543)	1.3217	28.919	2197											
44.780	30.589	1518	247.2(	376)	1.3473	28.919	1875	1.539	2887	1.854	1.08840	32.671	0.1172	3849	48.826	117.8		
COMBUSTOR	0	16	9 6															
44.800	116.826	2124	413.6(	542)	1.3217	28.919	2197											
44.800	30.598	1518	247.3(	376)	1.3473	28.919	1875	1.538	2885	1.854	1.08783	32.671	0.1173	3849	48.772	117.8		
COMBUSTOR	0	17	10 21															
46.250	93.936	2109	422.1(	609)	1.3261	25.454	2337											
46.250	62.709	1909	359.0(	546)	1.3336	25.454	2230	0.797	1777	2.072	1.03622	33.022	0.1244	3825	28.622	115.8	0.34	0.07
COMBUSTOR	0	18	11 21															
46.260	96.048	1996	422.0(	575)	1.3315	25.346	2283											
46.260	62.909	1795	359.2(	512)	1.3392	25.346	2171	0.817	1774	2.055	1.03571	33.022	0.1245	3826	28.549	115.9	0.34	0.01

READING = 0095 BLOCK = 233 TIME = 310.449 MACH 5.2 PT = 416.249 TT = 2225.3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	B	W/A	*	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
47.305	96.580	1959	415.6(563)	1.3331	25.330	2264											
47.305	74.418	1835	376.9(525)	1.3378	25.330	2195	0.635	1393	2.049	0.96216	33.022	0.1340	3964	20.830	120.6	0.34	0.00
COMBUSTOR	0	20	13 21														
47.310	96.614	1956	415.6(562)	1.3332	25.328	2263											
47.310	74.414	1832	376.8(524)	1.3379	25.328	2194	0.635	1393	2.048	0.96388	33.022	0.1338	3979	20.870	120.5	0.34	0.00
COMBUSTOR	0	21	14 4														
48.110	93.932	2151	411.0(621)	1.3238	25.528	2355											
48.110	69.336	1996	362.0(572)	1.3294	25.528	2273	0.689	1566	2.076	0.89838	33.022	0.1435	4156	21.861	125.8	0.34	0.12
COMBUSTOR	0	22	15 8														
48.745	88.967	2114	422.8(675)	1.3285	22.954	2467											
48.745	63.069	1941	362.5(615)	1.3350	22.953	2369	0.734	1738	2.253	0.83902	33.352	0.1552	4309	22.662	129.2	0.66	0.09
COMBUSTOR	0	23	16 2														
48.755	88.903	2119	422.8(677)	1.3283	22.957	2469											
48.755	62.979	1944	362.2(616)	1.3348	22.957	2371	0.734	1741	2.253	0.83793	33.352	0.1554	4312	22.677	129.3	0.66	0.09
COMBUSTOR	0	24	17 4														
49.285	85.498	2357	420.4(757)	1.3170	23.172	2581											
49.285	58.187	2147	346.1(683)	1.3245	23.172	2470	0.780	1928	2.286	0.78367	33.352	0.1662	4475	23.481	134.2	0.66	0.17
COMBUSTOR	0	25	18 5														
50.695	77.263	2933	414.5(954)	1.2903	23.722	2816											
50.695	43.631	2574	282.9(825)	1.3024	23.723	2651	0.968	2567	2.351	0.66790	33.352	0.1950	4839	26.641	145.1	0.66	0.36
COMBUSTOR	0	26	19 5														
52.795	70.201	3313	405.1(1091)	1.2718	24.044	2952											
52.795	29.050	2729	185.3(876)	1.2920	24.047	2700	1.228	3316	2.393	0.54934	33.470	0.2379	5220	28.311	156.0	0.66	0.50
COMBUSTOR	0	27	20 4														
53.295	68.515	3395	403.4(1120)	1.2674	24.133	2978											
53.295	27.783	2790	174.1(897)	1.2888	24.138	2721	1.245	3387	2.400	0.52690	33.470	0.2480	5289	27.736	158.0	0.66	0.53
COMBUSTOR	0	28	21 4														
54.045	66.870	3469	400.8(1146)	1.2637	24.217	3000											
54.045	25.010	2806	148.3(901)	1.2872	24.223	2723	1.306	3554	2.406	0.49667	33.470	0.2631	5383	27.436	160.8	0.66	0.56
COMBUSTOR	0	29	22 4														
54.805	65.892	3505	398.3(1158)	1.2617	24.261	3010											
54.805	22.200	2772	119.5(888)	1.2878	24.268	2704	1.381	3734	2.409	0.46968	33.470	0.2782	5467	27.288	163.3	0.66	0.57
COMBUSTOR	0	30	23 4														
55.760	64.033	3576	395.2(1183)	1.2578	24.344	3031											
55.760	20.150	2793	95.8(894)	1.2860	24.354	2708	1.430	3871	2.415	0.44013	33.470	0.2969	5559	26.474	166.1	0.66	0.60
COMBUSTOR	0	31	24 5														
56.230	51.922	4038	393.8(1349)	1.2290	24.858	3181											
56.230	19.101	3324	100.8(1079)	1.2596	24.895	2892	1.324	3829	2.453	0.35521	33.470	0.3679	5786	21.135	172.9	0.66	0.78
COMBUSTOR	0	32	25 5														
56.285	56.659	3753	393.6(1246)	1.2074	24.540	3080											
56.285	15.137	2847	42.4(910)	1.2816	24.557	2718	1.542	4192	2.433	0.35415	33.470	0.3690	5791	23.072	173.0	0.66	0.67
COMBUSTOR	0	33	26 3														
56.425	56.527	3761	393.2(1249)	1.2069	24.550	3082											
56.425	14.986	2850	39.6(911)	1.2814	24.568	2719	1.547	4207	2.434	0.35166	33.470	0.3716	5803	22.991	173.4	0.66	0.67
COMBUSTOR	0	34	27 5														
56.505	52.805	4028	393.1(1345)	1.2298	24.848	3148											
56.505	18.551	3281	88.1(1064)	1.2615	24.885	2876	1.358	3906	2.451	0.35566	33.470	0.3674	5809	21.591	173.6	0.66	0.77
COMBUSTOR	0	35	28 3														
56.785	53.407	4018	392.3(1341)	1.2305	24.839	3146											
56.785	17.950	3241	76.5(1049)	1.2632	24.876	2861	1.390	3975	2.450	0.35436	33.470	0.3688	5831	21.891	174.2	0.66	0.77
COMBUSTOR	0	36	29 4														
57.011	55.755	3901	391.7(1299)	1.2383	24.708	3118											
57.011	16.194	3033	47.5(975)	1.2728	24.735	2785	1.490	4150	2.441	0.35382	33.470	0.3693	5845	22.819	174.6	0.66	0.72
COMBUSTOR	0	37	30 6														
57.735	72.220	3381	389.9(1114)	1.2660	24.154	2971											
57.735	10.400	2188	-48.9(683)	1.3099	24.159	2429	1.929	4686	2.392	0.34821	33.470	0.3753	5874	25.356	175.5	0.66	0.54

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READING = 0095  BLOCK = 233  TIME = 310.449  MACH  5.2  PT = 416.249  TT = 2225.3                                    PAGE  3

                 P     T      H              GAMMA  MOLWT SONV  MACH  VEL   S      W/A      *      A/AC    MOMTM   C      IVAC  PHI  ETAC
COMBUSTOR        0    38    31    4
58.755      69.656 3450   387.5(1139) 1.2643 24.232 2991
58.755      10.800 2280   -45.8( 714) 1.3055 24.238 2471 1.885 4657 2.399 0.34599 33.470 0.3777   5869 25.039 176.0 0.66 0.56
COMBUSTOR        0    39    32    5
60.765      52.671 4223   383.0(1414) 1.2160 25.101 3189
60.765      20.437 3542    92.7(1156) 1.2471 25.161 2954 1.290 3811 2.456 0.35803 33.470 0.3650   5875 21.207 178.5 0.66 0.86
COMBUSTOR        0    40    33    4
62.185      52.498 4348   379.9(1460) 1.2067 25.258 3214
62.185      24.094 3790   131.0(1246) 1.2332 25.331 3029 1.165 3529 2.459 0.36774 33.470 0.3553   5864 20.166 175.2 0.66 0.92
COMBUSTOR        0    41    34    3
64.649      49.230 4361   373.5(1464) 1.2048 25.292 3214
64.649      24.139 3852   144.0(1269) 1.2293 25.365 3046 1.112 3389 2.463 0.34857 33.470 0.3749   5843 18.358 174.6 0.66 0.93
COMBUSTOR        0    42    35    4
65.025      45.515 4391   372.4(1475) 1.2015 25.331 3218
65.025      24.173 3942   165.9(1302) 1.2235 25.406 3072 1.044 3214 2.470 0.32406 33.470 0.4032   5840 16.187 174.5 0.66 0.95
COMBUSTOR   REGEN   43    36   21
65.025      45.515 4470   413.8(1506) 1.1965 25.306 3242
65.025      19.703 3880   139.9(1279) 1.2257 25.411 3050 1.214 3702 2.479 0.32406 33.470 0.4032   5886 18.644 175.9 0.66 0.95
NOZZLE   AE         44    37    4
87.261      45.515 4391   372.4(1464) 1.2015 25.331 3218
87.261       1.325 2153  -512.7( 653) 1.2967 25.459 2335 2.850 6655 2.470 0.06745 33.470 1.9372   7580  6.976 226.5 0.66 0.95
NOZZLE   PO         45    38    4
87.261      45.515 4391   372.4(1464) 1.2015 25.331 3218
87.261       0.610 1796  -632.1( 533) 1.3123 25.455 2146 3.304 7090 2.470 0.03944 33.470 3.2968   7890  4.367 235.7 0.66 0.95
NOZZLE   AE REGEN   46    39    4
87.261      45.515 4470   413.8(1506) 1.1965 25.306 3242
87.261       1.356 2224  -488.3( 677) 1.2938 25.455 2371 2.834 6719 2.479 0.06745 33.470 1.9372   7662  7.043 228.9 0.66 0.95
NOZZLE   PO REGEN   47    40    4
87.261      45.515 4470   413.8(1506) 1.1965 25.306 3242
87.261       0.610 1848  -615.0( 551) 1.3098 25.455 2174 3.300 7175 2.479 0.03899 33.470 3.5512   7988  4.348 238.7 0.66 0.95
FICTIVE COMBUSTR    67    60    0
65.025     184.812 4558   372.4(1536) 1.2058 25.527 3272
65.025       0.610 1337  -837.5( 386) 1.3365 25.638 1862 4.179 7781 2.361 0.05885 33.470 2.2203   8441  7.117 252.2 0.66 1.00
FICTIVE NOZZLE      68    61    0
87.261      25.186 4342   358.1(1456) 1.1973 25.316 3195
87.261       1.786 2605  -354.9( 810) 1.2796 25.455 2552 2.341 5973 2.513 0.06746 33.470 1.9371   7100  6.262 212.1 0.66 0.95
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XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.981E-01	1.405E 00	0.000	-5.161E-01	0.000	0.000	0.000	2.470E-02	2.304E 00	3.375E-03	0.000	0.000
1.836E 01	1.405E 00	0.000	-4.671E 01	0.000	0.000	0.000	1.634E 02	2.304E 00	3.375E-03	0.000	0.000
3.070E 01	2.605E 00	0.000	-2.093E 02	0.000	0.000	0.000	5.053E 02	4.273E 00	6.258E-03	0.000	0.000
3.508E 01	4.222E 00	0.000	-4.305E 02	0.000	0.000	0.000	6.804E 02	6.925E 00	1.014E-02	0.000	0.000
3.516E 01	4.258E 00	6.036E 00	-4.965E 02	0.000	0.000	0.000	6.841E 02	6.984E 00	1.023E-02	9.900E 00	1.450E-02
3.517E 01	4.261E 00	6.015E 00	-4.966E 02	0.000	0.000	0.000	6.843E 02	6.988E 00	1.024E-02	9.865E 00	1.445E-02
3.559E 01	4.425E 00	4.662E 00	-5.051E 02	0.000	0.000	0.000	7.225E 02	7.258E 00	1.063E-02	7.646E 00	1.120E-02
3.583E 01	4.478E 00	3.650E 00	-5.172E 02	-2.655E 02	-2.655E 02	0.000	7.515E 02	7.345E 00	1.076E-02	5.986E 00	8.769E-03
3.606E 01	4.520E 00	5.078E 00	-5.272E 02	-2.689E 02	-2.689E 02	0.000	7.749E 02	7.413E 00	1.086E-02	8.329E 00	1.220E-02
3.648E 01	4.954E 00	7.742E 00	-5.409E 02	-2.755E 02	-2.755E 02	0.000	8.183E 02	8.125E 00	1.190E-02	1.270E 01	1.860E-02
3.701E 01	4.627E 00	1.110E 01	-5.560E 02	-3.128E 02	-2.842E 02	-2.862E 01	8.743E 02	7.590E 00	1.112E-02	1.821E 01	2.668E-02
3.729E 01	5.929E 00	1.291E 01	-5.638E 02	-3.263E 02	-2.891E 02	-3.719E 01	9.048E 02	9.724E 00	1.424E-02	2.118E 01	3.102E-02
3.803E 01	9.285E 00	1.534E 01	-6.184E 02	-3.613E 02	-3.024E 02	-5.890E 01	9.851E 02	1.523E 01	2.231E-02	2.517E 01	3.686E-02
3.831E 01	1.221E 01	1.629E 01	-6.451E 02	-3.753E 02	-3.080E 02	-6.727E 01	1.017E 03	2.003E 01	2.934E-02	2.671E 01	3.913E-02
3.875E 01	1.668E 01	1.662E 01	-6.950E 02	-3.978E 02	-3.178E 02	-7.999E 01	1.066E 03	2.736E 01	4.007E-02	2.726E 01	3.994E-02
3.878E 01	1.704E 01	1.665E 01	-6.989E 02	-3.996E 02	-3.186E 02	-8.101E 01	1.070E 03	2.795E 01	4.093E-02	2.731E 01	4.000E-02
3.901E 01	1.935E 01	1.726E 01	-7.220E 02	-4.119E 02	-3.243E 02	-8.756E 01	1.096E 03	3.174E 01	4.649E-02	2.831E 01	4.147E-02
3.929E 01	1.895E 01	1.804E 01	-7.465E 02	-4.280E 02	-3.322E 02	-9.584E 01	1.129E 03	3.108E 01	4.553E-02	2.958E 01	4.333E-02
3.950E 01	1.866E 01	1.330E 01	-7.606E 02	-4.400E 02	-3.383E 02	-1.017E 02	1.152E 03	3.061E 01	4.483E-02	2.182E 01	3.196E-02
3.978E 01	1.980E 01	6.725E 00	-7.846E 02	-4.573E 02	-3.470E 02	-1.098E 02	1.185E 03	3.248E 01	4.758E-02	1.103E 01	1.616E-02
4.000E 01	2.067E 01	6.477E 00	-8.073E 02	-4.708E 02	-3.549E 02	-1.159E 02	1.211E 03	3.389E 01	4.965E-02	1.062E 01	1.556E-02
4.040E 01	2.373E 01	6.017E 00	-8.509E 02	-4.968E 02	-3.698E 02	-1.270E 02	1.257E 03	3.891E 01	5.700E-02	9.869E 00	1.446E-02
4.041E 01	2.380E 01	6.006E 00	-8.519E 02	-4.975E 02	-3.702E 02	-1.273E 02	1.259E 03	3.904E 01	5.718E-02	9.850E 00	1.443E-02
4.128E 01	3.045E 01	5.008E 00	-9.615E 02	-5.626E 02	-4.065E 02	-1.561E 02	1.362E 03	4.995E 01	7.316E-02	8.208E 00	1.202E-02
4.134E 01	3.095E 01	4.930E 00	-9.704E 02	-5.680E 02	-4.095E 02	-1.586E 02	1.369E 03	5.076E 01	7.436E-02	8.085E 00	1.184E-02
4.150E 01	3.214E 01	6.306E 00	-9.915E 02	-5.812E 02	-4.166E 02	-1.646E 02	1.388E 03	5.271E 01	7.721E-02	1.034E 01	1.515E-02
4.246E 01	2.002E 01	1.482E 01	-1.057E 03	-6.699E 02	-4.658E 02	-2.041E 02	1.503E 03	3.284E 01	4.811E-02	2.431E 01	3.561E-02
4.406E 01	4.328E 01	2.906E 01	-1.096E 03	-8.404E 02	-5.634E 02	-2.770E 02	1.697E 03	7.098E 01	1.040E-01	4.767E 01	6.982E-02
4.431E 01	4.683E 01	3.262E 01	-1.108E 03	-8.703E 02	-5.798E 02	-2.905E 02	1.727E 03	7.680E 01	1.125E-01	5.350E 01	7.836E-02
4.478E 01	5.363E 01	3.944E 01	-1.130E 03	-9.387E 02	-6.124E 02	-3.263E 02	1.784E 03	8.797E 01	1.289E-01	6.469E 01	9.475E-02
4.480E 01	5.392E 01	3.973E 01	-1.130E 03	-9.420E 02	-6.139E 02	-3.282E 02	1.786E 03	8.844E 01	1.295E-01	6.516E 01	9.545E-02
4.625E 01	6.482E 01	6.078E 01	-1.083E 03	-1.208E 03	-7.138E 02	-4.943E 02	1.965E 03	1.063E 02	1.557E-01	9.968E 01	1.460E-01
4.626E 01	6.490E 01	6.092E 01	-1.082E 03	-1.210E 03	-7.145E 02	-4.957E 02	1.966E 03	1.064E 02	1.559E-01	9.992E 01	1.464E-01
4.730E 01	7.275E 01	7.609E 01	-9.152E 02	-1.422E 03	-7.827E 02	-6.393E 02	2.095E 03	1.193E 02	1.748E-01	1.248E 02	1.828E-01
4.731E 01	7.279E 01	7.604E 01	-9.197E 02	-1.423E 03	-7.831E 02	-6.400E 02	2.096E 03	1.194E 02	1.749E-01	1.247E 02	1.827E-01
4.811E 01	6.986E 01	6.881E 01	-7.375E 02	-1.575E 03	-8.333E 02	-7.416E 02	2.196E 03	1.146E 02	1.678E-01	1.129E 02	1.653E-01
4.874E 01	6.307E 01	6.307E 01	-5.407E 02	-1.682E 03	-8.719E 02	-8.100E 02	2.275E 03	1.034E 02	1.515E-01	1.034E 02	1.515E-01
4.875E 01	6.298E 01	6.298E 01	-5.375E 02	-1.684E 03	-8.725E 02	-8.110E 02	2.276E 03	1.033E 02	1.513E-01	1.033E 02	1.513E-01
4.928E 01	5.819E 01	5.819E 01	-3.701E 02	-1.763E 03	-9.039E 02	-8.596E 02	2.343E 03	9.544E 01	1.398E-01	9.544E 01	1.398E-01
5.069E 01	4.363E 01	4.363E 01	6.293E 00	-1.960E 03	-9.836E 02	-9.763E 02	2.521E 03	7.156E 01	1.048E-01	7.156E 01	1.048E-01
5.279E 01	2.905E 01	2.905E 01	4.060E 02	-2.226E 03	-1.092E 03	-1.134E 03	2.787E 03	4.765E 01	6.979E-02	4.765E 01	6.979E-02
5.329E 01	2.778E 01	2.778E 01	4.803E 02	-2.284E 03	-1.116E 03	-1.168E 03	2.851E 03	4.557E 01	6.675E-02	4.557E 01	6.675E-02
5.404E 01	2.501E 01	2.501E 01	5.824E 02	-2.371E 03	-1.151E 03	-1.220E 03	2.946E 03	4.102E 01	6.008E-02	4.102E 01	6.008E-02
5.480E 01	2.220E 01	2.220E 01	6.739E 02	-2.455E 03	-1.185E 03	-1.271E 03	3.044E 03	3.641E 01	5.333E-02	3.641E 01	5.333E-02
5.576E 01	2.015E 01	2.015E 01	7.753E 02	-2.558E 03	-1.225E 03	-1.333E 03	3.167E 03	3.305E 01	4.841E-02	3.305E 01	4.841E-02
5.623E 01	1.914E 01	1.914E 01	1.006E 03	-2.605E 03	-1.242E 03	-1.363E 03	3.209E 03	3.139E 01	4.599E-02	3.139E 01	4.599E-02
5.628E 01	1.125E 01	1.902E 01	1.011E 03	-2.610E 03	-1.244E 03	-1.366E 03	3.217E 03	1.845E 01	2.703E-02	3.120E 01	4.570E-02
5.642E 01	1.125E 01	1.872E 01	1.024E 03	-2.623E 03	-1.248E 03	-1.375E 03	3.234E 03	1.845E 01	2.703E-02	3.071E 01	4.498E-02
5.650E 01	1.855E 01	1.855E 01	1.031E 03	-2.630E 03	-1.250E 03	-1.380E 03	3.245E 03	3.043E 01	4.457E-02	3.043E 01	4.457E-02
5.678E 01	1.795E 01	1.795E 01	1.055E 03	-2.655E 03	-1.259E 03	-1.397E 03	3.280E 03	2.944E 01	4.312E-02	2.944E 01	4.312E-02
5.701E 01	1.615E 01	1.615E 01	1.072E 03	-2.675E 03	-1.265E 03	-1.410E 03	3.309E 03	2.649E 01	3.881E-02	2.649E 01	3.881E-02
5.773E 01	1.040E 01	1.040E 01	1.108E 03	-2.734E 03	-1.285E 03	-1.409E 03	3.402E 03	1.706E 01	2.499E-02	1.706E 01	2.499E-02
5.875E 01	1.080E 01	1.080E 01	1.132E 03	-2.814E 03	-1.311E 03	-1.503E 03	3.532E 03	1.771E 01	2.595E-02	1.771E 01	2.595E-02
6.076E 01	2.044E 01	2.044E 01	1.136E 03	-2.965E 03	-1.356E 03	-1.609E 03	3.790E 03	3.352E 01	4.910E-02	3.352E 01	4.910E-02
6.218E 01	2.409E 01	2.409E 01	1.136E 03	-3.071E 03	-1.392E 03	-1.680E 03	3.972E 03	3.952E 01	5.788E-02	3.952E 01	5.788E-02
6.469E 01	2.414E 01	2.414E 01	1.136E 03	-3.284E 03	-1.476E 03	-1.808E 03	4.289E 03	3.959E 01	5.799E-02	3.959E 01	5.799E-02

YABS	P-IB	P-OB	PDA	COX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.502E 01	2.420E 01	2.415E 01	1.136E 03	-3.321E 03	-1.492E 03	-1.830E 03	4.337E 03	3.969E 01	5.814E-02	3.960E 01	5.801E-02
6.506E 01	2.420E 01	2.415E 01	1.136E 03	-3.325E 03	-1.494E 03	-1.832E 03	4.342E 03	3.969E 01	5.814E-02	3.960E 01	5.801E-02
6.526E 01	2.269E 01	2.415E 01	1.136E 03	-3.344E 03	-1.532E 03	-1.882E 03	4.368E 03	3.721E 01	5.450E-02	3.961E 01	5.802E-02
6.692E 01	1.011E 01	9.762E 00	1.322E 03	-3.475E 03	-1.558E 03	-1.917E 03	4.583E 03	1.659E 01	2.429E-02	1.601E 01	2.345E-02
6.759E 01	7.459E 00	9.375E 00	1.508E 03	-3.517E 03	-1.575E 03	-1.942E 03	4.665E 03	1.223E 01	1.792E-02	1.538E 01	2.292E-02
6.836E 01	4.410E 00	7.137E 00	1.701E 03	-3.559E 03	-1.590E 03	-1.969E 03	4.760E 03	7.233E 00	1.059E-02	1.171E 01	1.715E-02
6.908E 01	3.538E 00	5.049E 00	1.828E 03	-3.595E 03	-1.602E 03	-1.993E 03	4.948E 03	5.803E 00	8.501E-03	8.274E 00	1.212E-02
6.969E 01	2.800E 00	3.907E 00	1.910E 03	-3.621E 03	-1.610E 03	-2.011E 03	4.922E 03	4.592E 00	6.727E-03	6.408E 00	9.386E-03
7.064E 01	2.015E 00	2.135E 00	1.996E 03	-3.657E 03	-1.621E 03	-2.035E 03	5.036E 03	3.305E 00	4.841E-03	3.502E 00	5.129E-03
7.107E 01	1.660E 00	2.134E 00	2.024E 03	-3.670E 03	-1.629E 03	-2.045E 03	5.088E 03	2.723E 00	3.988E-03	3.500E 00	5.126E-03
7.260E 01	1.797E 00	2.130E 00	2.116E 03	-3.710E 03	-1.638E 03	-2.072E 03	5.273E 03	2.947E 00	4.316E-03	3.493E 00	5.117E-03
7.275E 01	1.810E 00	1.888E 00	2.124E 03	-3.713E 03	-1.639E 03	-2.074E 03	5.290E 03	2.969E 00	4.348E-03	3.097E 00	4.537E-03
7.350E 01	1.832E 00	6.800E-01	2.175E 03	-3.731E 03	-1.644E 03	-2.088E 03	5.374E 03	3.004E 00	4.400E-03	1.115E 00	1.634E-03
7.351E 01	1.832E 00	6.735E-01	2.176E 03	-3.732E 03	-1.644E 03	-2.088E 03	5.375E 03	3.004E 00	4.401E-03	1.105E 00	1.618E-03
7.483E 01	1.870E 00	0.000	2.215E 03	-3.767E 03	-1.651E 03	-2.116E 03	5.427E 03	3.067E 00	4.492E-03	0.000	0.000
7.768E 01	2.240E 00	0.000	2.297E 03	-3.777E 03	-1.661E 03	-2.116E 03	5.525E 03	3.674E 00	5.381E-03	0.000	0.000
8.158E 01	1.450E 00	0.000	2.376E 03	-3.784E 03	-1.669E 03	-2.116E 03	5.630E 03	2.378E 00	3.483E-03	0.000	0.000
8.439E 01	1.230E 00	0.000	2.406E 03	-3.789E 03	-1.673E 03	-2.116E 03	5.684E 03	2.017E 00	2.955E-03	0.000	0.000
8.725E 01	1.870E 00	0.000	2.443E 03	-3.797E 03	-1.681E 03	-2.116E 03	5.707E 03	3.067E 00	4.492E-03	0.000	0.000
8.726E 01	1.871E 00	0.000	2.443E 03	-3.797E 03	-1.681E 03	-2.116E 03	5.707E 03	3.069E 00	4.496E-03	0.000	0.000

X	DDRAG	CDRAG	CP	HC
4.040E 01	1.177E 02	1.177E 02	2.238E-03	5.044E-02
4.041E 01	1.654E-01	1.178E 02	2.246E-03	5.228E-02
4.128E 01	1.428E 01	1.321E 02	2.357E-03	5.574E-02
4.134E 01	1.065E 00	1.332E 02	2.365E-03	5.603E-02
4.150E 01	2.537E 00	1.357E 02	2.386E-03	5.674E-02
4.246E 01	1.551E 01	1.512E 02	2.446E-03	5.804E-02
4.406E 01	2.506E 01	1.763E 02	2.477E-03	5.707E-02
4.431E 01	3.708E 00	1.800E 02	2.479E-03	5.708E-02
4.478E 01	7.021E 00	1.870E 02	2.480E-03	5.705E-02
4.480E 01	2.979E-01	1.873E 02	2.479E-03	5.702E-02
4.625E 01	1.946E 01	2.068E 02	3.166E-03	5.952E-02
4.626E 01	1.068E-01	2.069E 02	2.804E-03	6.919E-02
4.730E 01	8.967E 00	2.158E 02	2.806E-03	6.600E-02
4.731E 01	4.185E-02	2.159E 02	2.797E-03	6.631E-02
4.811E 01	5.875E 00	2.218E 02	2.720E-03	6.898E-02
4.870E 01	5.171E 00	2.269E 02	3.127E-03	5.957E-02
4.875E 01	8.434E-02	2.270E 02	2.812E-03	6.815E-02
4.928E 01	4.265E 00	2.313E 02	2.747E-03	6.921E-02
5.069E 01	1.204E 01	2.433E 02	2.665E-03	6.506E-02
5.279E 01	1.982E 01	2.631E 02	2.753E-03	5.059E-02
5.329E 01	5.048E 00	2.682E 02	2.900E-03	4.626E-02
5.404E 01	7.654E 00	2.758E 02	2.891E-03	4.333E-02
5.480E 01	7.686E 00	2.835E 02	2.881E-03	4.022E-02
5.576E 01	9.465E 00	2.930E 02	2.858E-03	3.777E-02
5.623E 01	2.910E 00	2.959E 02	2.837E-03	3.420E-02
5.628E 01	4.535E-01	2.964E 02	2.988E-03	2.847E-02
5.642E 01	1.197E 00	2.976E 02	2.860E-03	2.950E-02
5.650E 01	6.848E-01	2.982E 02	3.143E-03	3.017E-02
5.678E 01	2.376E 00	3.006E 02	2.985E-03	3.129E-02
5.701E 01	1.915E 00	3.025E 02	2.957E-03	2.978E-02
5.773E 01	6.484E 00	3.090E 02	2.855E-03	2.329E-02
5.875E 01	8.934E 00	3.179E 02	2.570E-03	2.593E-02
6.076E 01	1.582E 01	3.338E 02	2.737E-03	3.641E-02
6.218E 01	1.093E 01	3.447E 02	3.061E-03	3.490E-02
6.465E 01	1.886E 01	3.636E 02	3.134E-03	3.313E-02
6.502E 01	2.637E 00	3.662E 02	3.196E-03	3.153E-02
6.506E 01	2.695E-01	3.665E 02	3.290E-03	3.225E-02
6.526E 01	1.379E 00	3.678E 02	3.281E-03	3.205E-02
6.692E 01	1.174E 01	3.796E 02	3.105E-03	2.158E-02
6.759E 01	4.339E 00	3.839E 02	3.077E-03	1.947E-02
6.836E 01	4.554E 00	3.885E 02	3.020E-03	1.521E-02
6.908E 01	3.648E 00	3.921E 02	2.975E-03	1.237E-02
6.969E 01	2.681E 00	3.948E 02	2.938E-03	1.037E-02
7.064E 01	3.409E 00	3.982E 02	2.868E-03	7.263E-03
7.107E 01	1.305E 00	3.995E 02	2.854E-03	6.784E-03
7.260E 01	4.543E 00	4.041E 02	2.854E-03	6.948E-03
7.275E 01	4.214E-01	4.045E 02	2.845E-03	6.638E-03
7.350E 01	1.808E 00	4.063E 02	2.785E-03	4.927E-03
7.351E 01	3.048E-03	4.063E 02	2.785E-03	4.918E-03
7.453E 01	1.111E 00	4.074E 02	2.837E-03	6.670E-03
7.768E 01	2.493E 00	4.099E 02	2.850E-03	7.606E-03
8.158E 01	2.466E 00	4.124E 02	2.770E-03	5.429E-03
8.439E 01	1.053E 00	4.134E 02	2.733E-03	4.757E-03
8.725E 01	4.745E-01	4.139E 02	2.783E-03	6.534E-03
8.726E 01	0.000	4.139E 02	2.783E-03	6.537E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1934.	(LBF)
MEASURED THRUST	2107.	(LBF)
CALCULATED SPECIFIC IMPULSE	2781.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3030.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6724	
MEASURED THRUST COEFFICIENT	0.7327	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	7177.	(LBF)
NET THRUST	2010.	(LBF)
SPECIFIC IMPULSE	2891.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6990	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.7	(LBF)
INLET MOMENTUM CHANGE	-968.5	(LBF)
COMBUSTOR FRICTION DRAG	248.5	(LBF)
COMBUSTOR STRUT DRAG	5.76	(LBF)
COMBUSTOR MOMENTUM CHANGE	1643.	(LBF)
NOZZLE FRICTION DRAG	47.70	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1260.	(LBF)
NOZZLE PRESSURE INTEGRAL	1307.	(LBF)
EXTERNAL FRICTION DRAG	51.37	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1311.	(LBF)
TOTAL EXTERNAL DRAG	-1363.	(LBF)
TOTAL STRUT DRAG	5.76	(LBF)
CAVITY FORCE	-1213.	(LBF)
CALCULATED LOAD CELL FORCE	-642.	(LBF)
MEASURED LOAD CELL FORCE	-469.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-145.8, -116.8,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2849	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	87.261	(IN)
STRUT LEADING EDGE	56.426	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	65.025	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.6655	
ADDITIVE DRAG COEFFICIENT	0.0110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2766	
DELTA PT2	0.1398	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4440	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2815	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9037	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9174	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9255	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8932	
ENTHALPY AT P0 - SUPERSONIC	-17.30	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-1.75	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0212
EQUIVALENCE RATIO	0.664
COMBUSTOR EFFICIENCY	0.946
TOTAL PRESSURE RATIO	0.2463
COMBUSTOR EFFECTIVENESS	0.8697
INJECTOR DISCHARGE COEFFICIENTS	0.8151, 0.7675,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9366
NOZZLE COEFFICIENT - CT	0.8615
PROCESS EFFICIENCY	0.8310
KINETIC ENERGY EFFICIENCY	0.8558

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.270	
1C	44.300	
2A	45.745	C
2C	46.250	E
3A	54.035	
3B	56.220	
4	44.770	

Reading 95

t = 317.65 sec.

READING = 0095 BLOCK = 241 TIME = 317.649 MACH 5.2 PT = 418.749 TT = 2230.2

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	FTAC
WIND TUNNEL		1	0 4														
0.000	418.749	2230	443.9(572)	1.3180	28.919	2248											
0.000	0.587	376	-38.8(90)	1.3984	28.919	950	5.170	4914	1.780	0.14360	31.834	0.8655	4993	10.967	156.8		
SPIKE TIP NS		2	0 6														
0.600	21.200	2230	443.9(572)	1.3181	28.919	2248											
0.600	19.181	2177	428.7(557)	1.3199	28.919	2223	0.392	871	1.985	0.14360	31.834	0.8655	5114	1.943	160.6		
WIND TUNNEL		3	0 0														
0.000	418.749	2230	443.9(572)	1.3180	28.919	2248											
0.000	0.613	380	-37.6(91)	1.3985	28.919	956	5.132	4909	1.780	0.14798	32.804	0.8655	5141	11.288	156.7		
SPIKE TIP NS		4	0 0														
0.600	21.200	2230	443.9(572)	1.3181	28.919	2248											
0.600	19.038	2173	427.6(556)	1.3200	28.919	2221	0.406	902	1.985	0.14798	32.804	0.8655	5141	2.075	156.7		
INLET THROAT		5	0 4														
40.400	189.094	2165	425.4(554)	1.3203	28.919	2217											
40.400	20.441	1229	171.5(301)	1.3645	28.919	1698	2.099	3564	1.827	1.10923	32.804	0.1128	4221	63.316	128.7		
INLET UPNRSK		6	0 3														
40.400	189.094	2165	425.4(554)	1.3203	28.919	2217											
40.400	18.237	1192	162.0(291)	1.3668	28.919	1674	2.169	3630	1.827	1.03912	32.804	0.1233	4277	58.626	130.4		
INLET DNNRSK		7	0 4														
40.400	117.919	2165	425.4(554)	1.3203	28.919	2217											
40.400	97.480	2067	397.7(527)	1.3237	28.919	2169	0.543	1178	1.859	1.03912	32.804	0.1233	4277	19.020	130.4		
COMBUSTOR	0	8	1 4														
40.410	188.878	2165	425.4(554)	1.3203	28.919	2217											
40.410	21.570	1247	176.2(305)	1.3634	28.919	1710	2.065	3531	1.827	1.14290	32.804	0.1121	4220	62.722	128.6		
COMBUSTOR	0	9	2 4														
41.280	158.333	2157	423.2(552)	1.3206	28.919	2213											
41.280	25.044	1354	203.9(333)	1.3568	28.919	1777	1.863	3312	1.838	1.14626	32.804	0.1117	4094	59.000	124.8		
COMBUSTOR	0	10	3 4														
41.345	156.348	2157	423.0(552)	1.3206	28.919	2213											
41.345	25.352	1363	206.1(335)	1.3563	28.919	1783	1.848	3294	1.839	1.14691	32.804	0.1117	4084	58.711	124.5		
COMBUSTOR	0	11	4 4														
41.500	151.776	2155	422.5(551)	1.3206	28.919	2212											
41.500	26.118	1383	211.5(340)	1.3550	28.919	1795	1.811	3250	1.840	1.14859	32.804	0.1115	4059	58.009	123.7		
COMBUSTOR	0	12	5 5														
42.460	134.793	2145	419.6(548)	1.3210	28.919	2207											
42.460	28.741	1455	230.4(359)	1.3508	28.919	1838	1.674	3076	1.847	1.13730	32.804	0.1126	3966	54.372	120.9		
COMBUSTOR	0	13	6 4														
44.065	122.557	2126	414.2(543)	1.3217	28.919	2198											
44.065	29.535	1488	239.1(368)	1.3490	28.919	1857	1.594	2960	1.851	1.09974	32.804	0.1165	3899	50.589	118.9		
COMBUSTOR	0	14	7 4														
44.310	121.177	2123	413.4(542)	1.3218	28.919	2196											
44.310	29.740	1493	240.4(369)	1.3487	28.919	1860	1.582	2942	1.852	1.09708	32.804	0.1167	3889	50.160	118.6		
COMBUSTOR	0	15	8 3														
44.780	119.348	2117	411.8(541)	1.3220	28.919	2194											
44.780	29.949	1497	241.5(371)	1.3485	28.919	1863	1.567	2919	1.852	1.09282	32.804	0.1172	3875	49.566	118.1		
COMBUSTOR	0	16	9 3														
44.800	119.268	2117	411.7(540)	1.3220	28.919	2193											
44.800	29.934	1497	241.5(371)	1.3485	28.919	1863	1.567	2918	1.852	1.09225	32.804	0.1173	3874	49.534	118.1		
COMBUSTOR	0	17	10 12														
46.250	98.703	2081	418.9(584)	1.3266	26.191	2289											
46.250	40.782	1668	293.6(458)	1.3430	26.191	2062	1.214	2504	2.017	1.03773	33.070	0.1244	3873	40.375	117.1	0.26	0.05
COMBUSTOR	0	18	11 2														
46.260	98.626	2083	418.8(584)	1.3265	26.192	2290											
46.260	40.869	1670	293.8(459)	1.3428	26.192	2063	1.212	2501	2.017	1.03722	33.070	0.1245	3874	40.311	117.1	0.26	0.06

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	W	A/AC	MOMTM	G	IVAC	PHI	FTAC
COMBUSTOR	0	19	12 4														
47.305	92.376	2276	415.1(642)	1.3173	26.400	2377											
47.305	49.924	1960	317.1(544)	1.3288	26.400	2215	1.000	2214	2.044	0.96355	33.070	0.1340	3989	33.157	120.6	0.26	0.21
COMBUSTOR	0	20	13 2														
47.310	92.477	2274	415.1(641)	1.3175	26.396	2376											
47.310	49.908	1956	317.0(543)	1.3289	26.396	2213	1.001	2215	2.044	0.96528	33.070	0.1338	3987	33.228	120.5	0.26	0.20
COMBUSTOR	0	21	14 4														
48.110	89.050	2402	412.4(678)	1.3115	26.535	2429											
48.110	43.423	2019	293.7(560)	1.3251	26.535	2239	1.088	2437	2.059	0.89968	33.070	0.1435	4100	34.066	124.0	0.26	0.30
COMBUSTOR	0	22	15 2														
48.745	85.763	2190	422.1(668)	1.3237	24.191	2441											
48.745	34.463	1745	275.4(521)	1.3408	24.190	2193	1.236	2709	2.179	0.83831	33.324	0.1552	4177	35.296	125.3	0.50	0.11
COMBUSTOR	0	23	16 2														
48.755	85.740	2190	422.0(668)	1.3237	24.191	2441											
48.755	34.354	1743	274.8(521)	1.3408	24.191	2192	1.238	2714	2.179	0.83722	33.324	0.1554	4179	35.314	125.4	0.50	0.11
COMBUSTOR	0	24	17 2														
49.285	85.875	2179	420.7(664)	1.3241	24.165	2436											
49.285	27.487	1638	243.1(487)	1.3456	24.165	2129	1.401	2981	2.178	0.78301	33.324	0.1662	4258	36.277	127.8	0.50	0.11
COMBUSTOR	0	25	18 4														
50.695	79.661	2284	417.0(698)	1.3191	24.292	2483											
50.695	21.825	1655	209.9(491)	1.3437	24.292	2133	1.509	3219	2.196	0.66733	33.324	0.1950	4424	33.385	132.8	0.50	0.16
COMBUSTOR	0	26	19 4														
52.795	69.955	2437	410.3(750)	1.3119	24.363	2554											
52.795	17.850	1744	179.1(519)	1.3379	24.363	2182	1.559	3400	2.230	0.54884	33.439	0.2379	4622	29.004	138.2	0.51	0.23
COMBUSTOR	0	27	20 3														
53.295	69.120	2450	409.1(754)	1.3113	24.378	2560											
53.295	16.600	1727	168.3(514)	1.3385	24.378	2171	1.599	3471	2.232	0.52642	33.439	0.2480	4662	28.395	139.4	0.51	0.23
COMBUSTOR	0	28	21 4														
54.045	63.831	2570	407.4(793)	1.3057	24.498	2609											
54.045	16.972	1866	170.7(557)	1.3313	24.498	2245	1.533	3441	2.250	0.49622	33.439	0.2631	4720	26.535	141.2	0.51	0.28
COMBUSTOR	0	29	22 4														
54.805	59.464	2693	405.3(833)	1.2999	24.623	2659											
54.805	17.350	2009	173.0(602)	1.3242	24.623	2318	1.471	3410	2.267	0.46925	33.439	0.2782	4780	24.864	142.9	0.51	0.34
COMBUSTOR	0	30	23 5														
55.760	52.267	3012	402.4(939)	1.2849	24.953	2777											
55.760	21.716	2467	211.2(751)	1.3036	24.954	2531	1.222	3093	2.303	0.43973	33.439	0.2969	4066	21.137	145.5	0.51	0.47
COMBUSTOR	0	31	24 5														
56.230	44.954	3729	400.9(1180)	1.2468	25.738	2997											
56.230	23.863	3279	229.8(1020)	1.2650	25.752	2830	1.034	2926	2.355	0.35488	33.439	0.3679	5290	16.139	158.2	0.51	0.79
COMBUSTOR	0	32	25 3														
56.285	44.883	3738	400.7(1183)	1.2462	25.749	2999											
56.285	23.732	3285	228.2(1022)	1.2646	25.763	2832	1.038	2938	2.355	0.35382	33.439	0.3690	5296	16.155	158.4	0.51	0.79
COMBUSTOR	0	33	26 3														
56.425	44.662	3765	400.3(1192)	1.2446	25.780	3006											
56.425	24.052	3323	231.3(1034)	1.2627	25.796	2844	1.023	2908	2.357	0.35134	33.439	0.3716	5311	15.877	158.8	0.51	0.80
COMBUSTOR	0	34	27 4														
56.505	45.254	3780	400.1(1197)	1.2437	25.799	3010											
56.505	25.120	3359	238.4(1047)	1.2610	25.815	2856	0.996	2844	2.356	0.35534	33.439	0.3674	5320	15.707	159.1	0.51	0.81
COMBUSTOR	0	35	23 3														
56.785	45.393	3818	399.2(1210)	1.2413	25.845	3019											
56.785	26.400	3428	248.4(1071)	1.2576	25.862	2879	0.954	2747	2.357	0.35404	33.439	0.3688	5349	15.115	160.0	0.51	0.83
COMBUSTOR	0	36	29 3														
57.011	45.637	3833	398.5(1215)	1.2404	25.865	3023											
57.011	27.732	3474	258.8(1086)	1.2555	25.881	2895	0.913	2644	2.358	0.35350	33.439	0.3693	5371	14.524	160.6	0.51	0.84
COMBUSTOR	0	37	30 4														
57.735	46.336	3760	396.3(1191)	1.2449	25.788	3004											
57.735	32.000	3493	292.9(1095)	1.2559	25.798	2908	0.782	2275	2.353	0.34789	33.439	0.3753	5440	12.297	162.7	0.51	0.81

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READING = 0095  BLOCK = 241  TIME = 317.649  MACH  5.2  PT = 418.749  T1 = 2230.2                                        PAGE  3
                 P      T      H             GAMMA  MOLWT  SONV  MACH   VEL    S      W/A      W      A/AC     MOMTM   Q      IVAC  PHI  ETAC
COMBUSTOR        0     38   31    3
58.755      47.012   3736   393.3(1182)   1.2463  25.769  2997
58.755      33.825   3498   301.5(1097)   1.2561  25.778  2911  0.736  2143  2.351  0.34568  33.439  0.3777   5499  11.512  164.5  0.51  0.80
COMBUSTOR        0     39   32    4
60.765      47.726   3871   387.7(1228)   1.2378  25.944  3030
60.765      32.175   3585   275.1(1125)   1.2500  25.959  2930  0.810  2373  2.354  0.35771  33.439  0.3658   5474  13.190  163.7  0.51  0.87
COMBUSTOR        0     40   33    4
62.185      48.277   3944   383.7(1252)   1.2331  26.042  3047
62.185      30.169   3603   248.4(1130)   1.2479  26.062  2929  0.888  2602  2.354  0.36740  33.439  0.3553   5450  14.854  163.0  0.51  0.91
COMBUSTOR        0     41   34    3
64.649      45.189   3916   376.2(1243)   1.2343  26.032  3038
64.649      23.404   3444   191.6(1073)   1.2546  26.056  2871  1.059  3039  2.357  0.34825  33.439  0.3749   5406  16.449  161.7  0.51  0.90
COMBUSTOR        0     42   35    2
65.025      41.936   3908   375.0(1240)   1.2343  26.027  3036
65.025      21.998   3446   194.1(1074)   1.2544  26.051  2872  1.048  3009  2.363  0.32376  33.439  0.4032   5399  15.139  161.5  0.51  0.90
COMBUSTOR   REGEN      43   36   21
65.025      41.936   4030   426.2(1284)   1.2277  26.013  3075
65.025      28.556   3750   312.1(1183)   1.2406  26.036  2981  0.802  2390  2.375  0.32376  33.439  0.4032   5433  12.025  162.5  0.51  0.90
NOZZLE   AE            44   37    4
87.261      41.936   3908   375.0(1233)   1.2343  26.027  3036
87.261       1.164   1787  -377.5( 513)   1.3181  26.062  2120  2.895  6136  2.363  0.06740  33.439  1.9371   6955   6.427  208.0  0.51  0.90
NOZZLE   PO            45   38    4
87.261      41.936   3908   375.0(1233)   1.2343  26.027  3036
87.261       0.613   1527  -458.3( 432)   1.3317  26.062  1970  3.279  6458  2.363  0.04372  33.439  2.9864   7180   4.387  214.7  0.51  0.90
NOZZLE   AE REGEN      46   39    4
87.261      41.936   4030   426.2(1284)   1.2277  26.013  3075
87.261       1.204   1876  -349.2( 541)   1.3141  26.062  2169  2.872  6229  2.375  0.06740  33.439  1.9371   7071   6.524  211.5  0.51  0.90
NOZZLE   PO REGEN      47   40    4
87.261      41.936   4030   426.2(1284)   1.2277  26.013  3075
87.261       0.613   1592  -438.2( 452)   1.3280  26.062  2009  3.275  6577  2.375  0.04270  33.439  3.0578   7316   4.364  218.8  0.51  0.90
FICTIVE COMBUSTR       67   60    0
65.025     189.094   4129   375.0(1316)   1.2296  26.290  3099
65.025       0.613   1125  -660.1( 310)   1.3543  26.329  1696  4.242  7197  2.253  0.06678  33.439  1.9558   7787   7.469  232.9  0.51  1.00
FICTIVE NOZZLE         68   61    0
87.261      27.593   3867   359.7(1225)   1.2341  26.026  3019
87.261       1.432   2049  -293.8( 597)   1.3067  26.062  2260  2.530  5717  2.391  0.06740  33.439  1.9371   6652   5.988  198.9  0.51  0.90
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READING = 0095 BLOCK = 241 TIME = 317.649 MACH 5.2 PT = 410.749 TT = 2230.2

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.981E-01	1.405E 00	0.000	-5.189E-01	0.000	0.000	0.000	2.470E-02	2.292E 00	3.355E-03	0.000	0.000
1.836E 01	1.405E 00	0.000	-4.671E 01	0.000	0.000	0.000	1.634E 02	2.292E 00	3.355E-03	0.000	0.000
3.070E 01	2.600E 00	0.000	-2.091E 02	0.000	0.000	0.000	5.053E 02	4.242E 00	6.209E-03	0.000	0.000
3.508E 01	4.232E 00	0.000	-4.304E 02	0.000	0.000	0.000	6.804E 02	6.905E 00	1.011E-02	0.000	0.000
3.516E 01	4.268E 00	6.073E 00	-4.968E 02	0.000	0.000	0.000	6.841E 02	6.963E 00	1.019E-02	9.908E 00	1.450E-02
3.517E 01	4.270E 00	6.051E 00	-4.969E 02	0.000	0.000	0.000	6.843E 02	6.967E 00	1.020E-02	9.873E 00	1.445E-02
3.555E 01	4.435E 00	4.677E 00	-5.053E 02	0.000	0.000	0.000	7.225E 02	7.236E 00	1.059E-02	7.631E 00	1.117E-02
3.583E 01	4.457E 00	3.650E 00	-5.174E 02	-3.443E 02	-3.443E 02	0.000	7.515E 02	7.273E 00	1.064E-02	5.955E 00	8.716E-03
3.606E 01	4.475E 00	5.088E 00	-5.273E 02	-3.487E 02	-3.487E 02	0.000	7.745E 02	7.301E 00	1.069E-02	8.301E 00	1.215E-02
3.648E 01	4.910E 00	7.770E 00	-5.405E 02	-3.573E 02	-3.573E 02	0.000	8.183E 02	8.011E 00	1.173E-02	1.268E 01	1.856E-02
3.701E 01	4.627E 00	1.116E 01	-5.552E 02	-3.977E 02	-3.686E 02	-2.907E 01	8.743E 02	7.550E 00	1.105E-02	1.820E 01	2.664E-02
3.729E 01	5.949E 00	1.297E 01	-5.630E 02	-4.127E 02	-3.749E 02	-3.778E 01	9.048E 02	9.707E 00	1.421E-02	2.117E 01	3.099E-02
3.803E 01	9.360E 00	1.539E 01	-6.181E 02	-4.520E 02	-3.921E 02	-5.985E 01	9.851E 02	1.527E 01	2.235E-02	2.511E 01	3.675E-02
3.831E 01	1.230E 01	1.632E 01	-6.451E 02	-4.677E 02	-3.994E 02	-6.836E 01	1.017E 03	2.007E 01	2.938E-02	2.664E 01	3.899E-02
3.875E 01	1.679E 01	1.667E 01	-6.955E 02	-4.931E 02	-4.118E 02	-8.130E 01	1.066E 03	2.740E 01	4.010E-02	2.720E 01	3.981E-02
3.878E 01	1.715E 01	1.670E 01	-6.994E 02	-4.952E 02	-4.128E 02	-8.234E 01	1.070E 03	2.798E 01	4.096E-02	2.725E 01	3.988E-02
3.901E 01	1.947E 01	1.733E 01	-7.228E 02	-5.090E 02	-4.199E 02	-8.901E 01	1.096E 03	3.177E 01	4.651E-02	2.827E 01	4.138E-02
3.929E 01	1.902E 01	1.812E 01	-7.474E 02	-5.271E 02	-4.297E 02	-9.744E 01	1.129E 03	3.104E 01	4.543E-02	2.957E 01	4.328E-02
3.950E 01	1.870E 01	1.308E 01	-7.617E 02	-5.407E 02	-4.372E 02	-1.035E 02	1.152E 03	3.051E 01	4.466E-02	2.134E 01	3.124E-02
3.978E 01	1.985E 01	6.075E 00	-7.866E 02	-5.601E 02	-4.484E 02	-1.117E 02	1.185E 03	3.238E 01	4.740E-02	9.912E 00	1.451E-02
4.000E 01	2.071E 01	5.918E 00	-8.100E 02	-5.754E 02	-4.575E 02	-1.178E 02	1.211E 03	3.379E 01	4.946E-02	9.655E 00	1.413E-02
4.040E 01	2.385E 01	5.625E 00	-8.550E 02	-6.048E 02	-4.756E 02	-1.292E 02	1.257E 03	3.891E 01	5.695E-02	9.178E 00	1.343E-02
4.041E 01	2.393E 01	5.618E 00	-8.560E 02	-6.055E 02	-4.760E 02	-1.295E 02	1.259E 03	3.904E 01	5.714E-02	9.166E 00	1.342E-02
4.128E 01	3.075E 01	4.982E 00	-9.677E 02	-6.791E 02	-5.200E 02	-1.590E 02	1.362E 03	5.017E 01	7.343E-02	8.128E 00	1.190E-02
4.134E 01	3.126E 01	4.934E 00	-9.767E 02	-6.852E 02	-5.236E 02	-1.616E 02	1.369E 03	5.100E 01	7.465E-02	8.051E 00	1.178E-02
4.150E 01	3.247E 01	5.705E 00	-9.984E 02	-7.001E 02	-5.323E 02	-1.678E 02	1.388E 03	5.299E 01	7.755E-02	9.308E 00	1.362E-02
4.246E 01	2.002E 01	1.048E 01	-1.077E 03	-7.984E 02	-5.898E 02	-2.086E 02	1.503E 03	3.267E 01	4.782E-02	1.709E 01	2.502E-02
4.406E 01	2.694E 01	1.845E 01	-1.118E 03	-9.732E 02	-6.893E 02	-2.839E 02	1.697E 03	4.396E 01	6.434E-02	3.010E 01	4.406E-02
4.431E 01	2.800E 01	2.107E 01	-1.124E 03	-1.000E 03	-7.042E 02	-2.961E 02	1.727E 03	4.568E 01	6.687E-02	3.438E 01	5.033E-02
4.476E 01	3.003E 01	2.610E 01	-1.132E 03	-1.054E 03	-7.328E 02	-3.207E 02	1.784E 03	4.899E 01	7.170E-02	4.259E 01	6.234E-02
4.480E 01	3.011E 01	2.632E 01	-1.132E 03	-1.056E 03	-7.340E 02	-3.218E 02	1.786E 03	4.913E 01	7.191E-02	4.294E 01	6.285E-02
4.625E 01	3.972E 01	4.184E 01	-1.072E 03	-1.225E 03	-8.212E 02	-4.043E 02	1.965E 03	6.481E 01	9.485E-02	6.827E 01	9.993E-02
4.626E 01	3.979E 01	4.195E 01	-1.072E 03	-1.227E 03	-8.217E 02	-4.049E 02	1.966E 03	6.491E 01	9.501E-02	6.845E 01	1.002E-01
4.730E 01	4.671E 01	5.314E 01	-9.431E 02	-1.351E 03	-8.838E 02	-4.672E 02	2.095E 03	7.621E 01	1.115E-01	8.670E 01	1.269E-01
4.731E 01	4.674E 01	5.307E 01	-9.459E 02	-1.352E 03	-8.841E 02	-4.675E 02	2.096E 03	7.627E 01	1.116E-01	8.659E 01	1.267E-01
4.811E 01	4.414E 01	4.271E 01	-8.226E 02	-1.441E 03	-9.314E 02	-5.093E 02	2.196E 03	7.201E 01	1.054E-01	6.968E 01	1.020E-01
4.874E 01	3.448E 01	3.448E 01	-7.086E 02	-1.502E 03	-9.686E 02	-5.338E 02	2.275E 03	5.626E 01	8.235E-02	5.626E 01	8.235E-02
4.875E 01	3.435E 01	3.435E 01	-7.068E 02	-1.503E 03	-9.692E 02	-5.341E 02	2.276E 03	5.605E 01	8.204E-02	5.605E 01	8.204E-02
4.928E 01	2.749E 01	2.749E 01	-6.214E 02	-1.549E 03	-1.000E 03	-5.486E 02	2.343E 03	4.485E 01	6.564E-02	4.485E 01	6.564E-02
5.069E 01	2.182E 01	2.182E 01	-4.391E 02	-1.671E 03	-1.082E 03	-5.888E 02	2.521E 03	3.561E 01	5.212E-02	3.561E 01	5.212E-02
5.279E 01	1.785E 01	1.785E 01	-2.207E 02	-1.850E 03	-1.202E 03	-6.478E 02	2.787E 03	2.912E 01	4.263E-02	2.912E 01	4.263E-02
5.329E 01	1.660E 01	1.660E 01	-1.759E 02	-1.888E 03	-1.231E 03	-6.574E 02	2.851E 03	2.708E 01	3.964E-02	2.708E 01	3.964E-02
5.404E 01	1.697E 01	1.697E 01	-1.109E 02	-1.947E 03	-1.273E 03	-6.740E 02	2.946E 03	2.769E 01	4.053E-02	2.769E 01	4.053E-02
5.480E 01	1.735E 01	1.735E 01	-4.442E 01	-2.015E 03	-1.316E 03	-6.992E 02	3.044E 03	2.831E 01	4.143E-02	2.831E 01	4.143E-02
5.576E 01	2.172E 01	2.172E 01	4.909E 01	-2.112E 03	-1.369E 03	-7.432E 02	3.167E 03	3.543E 01	5.186E-02	3.543E 01	5.186E-02
5.623E 01	2.386E 01	2.386E 01	4.752E 02	-2.162E 03	-1.392E 03	-7.700E 02	3.209E 03	3.893E 01	5.699E-02	3.893E 01	5.699E-02
5.628E 01	2.335E 01	2.411E 01	4.820E 02	-2.168E 03	-1.394E 03	-7.734E 02	3.217E 03	3.810E 01	5.576E-02	3.935E 01	5.759E-02
5.642E 01	2.335E 01	2.475E 01	4.979E 02	-2.182E 03	-1.400E 03	-7.820E 02	3.234E 03	3.810E 01	5.576E-02	4.039E 01	5.912E-02
5.650E 01	2.512E 01	2.512E 01	5.080E 02	-2.190E 03	-1.403E 03	-7.869E 02	3.245E 03	4.099E 01	5.999E-02	4.099E 01	5.999E-02
5.678E 01	2.640E 01	2.640E 01	5.416E 02	-2.219E 03	-1.415E 03	-8.041E 02	3.280E 03	4.307E 01	6.304E-02	4.307E 01	6.304E-02
5.701E 01	2.773E 01	2.773E 01	5.679E 02	-2.242E 03	-1.424E 03	-8.179E 02	3.309E 03	4.525E 01	6.623E-02	4.525E 01	6.623E-02
5.773E 01	3.200E 01	3.200E 01	6.489E 02	-2.316E 03	-1.454E 03	-8.623E 02	3.402E 03	5.221E 01	7.642E-02	5.221E 01	7.642E-02
5.875E 01	3.382E 01	3.382E 01	7.251E 02	-2.416E 03	-1.494E 03	-9.211E 02	3.532E 03	5.519E 01	8.078E-02	5.519E 01	8.078E-02
6.076E 01	3.217E 01	3.217E 01	7.328E 02	-2.605E 03	-1.574E 03	-1.031E 03	3.790E 03	5.250E 01	7.684E-02	5.250E 01	7.684E-02
6.218E 01	3.017E 01	3.017E 01	7.328E 02	-2.739E 03	-1.635E 03	-1.104E 03	3.972E 03	4.922E 01	7.204E-02	4.922E 01	7.204E-02
6.465E 01	2.340E 01	2.340E 01	7.328E 02	-2.987E 03	-1.758E 03	-1.229E 03	4.289E 03	3.818E 01	5.589E-02	3.818E 01	5.589E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.502E 01	2.162E 01	2.237E 01	7.328E 02	-3.028E 03	-1.779E 03	-1.248E 03	4.337E 03	3.528E 01	5.164E-02	3.650E 01	5.342E-02
6.506E 01	2.162E 01	2.226E 01	7.328E 02	-3.032E 03	-1.782E 03	-1.250E 03	4.342E 03	3.528E 01	5.164E-02	3.632E 01	5.316E-02
6.526E 01	2.024E 01	2.171E 01	7.328E 02	-3.053E 03	-1.793E 03	-1.260E 03	4.368E 03	3.302E 01	4.833E-02	3.543E 01	5.185E-02
6.692E 01	8.725E 00	8.525E 00	8.983E 02	-3.195E 03	-1.870E 03	-1.326E 03	4.583E 03	1.424E 01	2.084E-02	1.391E 01	2.036E-02
6.759E 01	6.722E 00	8.392E 00	1.062E 03	-3.240E 03	-1.893E 03	-1.347E 03	4.665E 03	1.097E 01	1.605E-02	1.369E 01	2.004E-02
6.836E 01	4.420E 00	6.730E 00	1.241E 03	-3.287E 03	-1.916E 03	-1.371E 03	4.760E 03	7.212E 00	1.056E-02	1.098E 01	1.607E-02
6.908E 01	3.697E 00	5.175E 00	1.368E 03	-3.329E 03	-1.933E 03	-1.395E 03	4.848E 03	6.032E 00	8.829E-03	8.443E 00	1.236E-02
6.969E 01	3.085E 00	4.401E 00	1.456E 03	-3.362E 03	-1.946E 03	-1.415E 03	4.922E 03	5.033E 00	7.367E-03	7.180E 00	1.051E-02
7.064E 01	2.424E 00	3.195E 00	1.559E 03	-3.407E 03	-1.964E 03	-1.443E 03	5.036E 03	3.955E 00	5.789E-03	5.213E 00	7.630E-03
7.107E 01	2.125E 00	2.968E 00	1.596E 03	-3.425E 03	-1.971E 03	-1.454E 03	5.088E 03	3.467E 00	5.075E-03	4.842E 00	7.088E-03
7.260E 01	2.038E 00	2.160E 00	1.707E 03	-3.477E 03	-1.993E 03	-1.485E 03	5.273E 03	3.326E 00	4.868E-03	3.524E 00	5.158E-03
7.275E 01	2.030E 00	1.899E 00	1.715E 03	-3.482E 03	-1.994E 03	-1.487E 03	5.290E 03	3.312E 00	4.848E-03	3.099E 00	4.535E-03
7.350E 01	2.005E 00	5.950E-01	1.768E 03	-3.505E 03	-2.003E 03	-1.502E 03	5.374E 03	3.271E 00	4.787E-03	9.708E-01	1.421E-03
7.351E 01	2.005E 00	5.880E-01	1.769E 03	-3.505E 03	-2.003E 03	-1.502E 03	5.375E 03	3.271E 00	4.787E-03	9.594E-01	1.404E-03
7.483E 01	1.960E 00	0.000	1.811E 03	-3.547E 03	-2.015E 03	-1.532E 03	5.427E 03	3.198E 00	4.681E-03	0.000	0.000
7.768E 01	2.025E 00	0.000	1.890E 03	-3.493E 03	-2.035E 03	-1.458E 03	5.525E 03	3.304E 00	4.836E-03	0.000	0.000
8.158E 01	1.340E 00	0.000	1.962E 03	-3.509E 03	-2.051E 03	-1.458E 03	5.630E 03	2.186E 00	3.200E-03	0.000	0.000
8.439E 01	1.365E 00	0.000	1.992E 03	-3.520E 03	-2.062E 03	-1.458E 03	5.684E 03	2.227E 00	3.260E-03	0.000	0.000
8.725E 01	1.865E 00	0.000	2.031E 03	-3.540E 03	-2.082E 03	-1.458E 03	5.707E 03	3.043E 00	4.454E-03	0.000	0.000
8.726E 01	1.866E 00	0.000	2.031E 03	-3.540E 03	-2.082E 03	-1.458E 03	5.707E 03	3.045E 00	4.456E-03	0.000	0.000

READING = 0095 BLOCK = 241 TIME = 317.649 MACH 5.2 PT = 418.749 TT = 2230.2

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.177E 02	1.177E 02	2.222E-03	5.020E-02
4.041E 01	1.657E-01	1.178E 02	2.230E-03	5.202E-02
4.128E 01	1.431E 01	1.321E 02	2.342E-03	5.551E-02
4.134E 01	1.068E 00	1.332E 02	2.350E-03	5.500E-02
4.150E 01	2.545E 00	1.358E 02	2.371E-03	5.651E-02
4.246E 01	1.554E 01	1.513E 02	2.443E-03	5.816E-02
4.406E 01	2.511E 01	1.764E 02	2.483E-03	5.740E-02
4.431E 01	3.728E 00	1.801E 02	2.489E-03	5.742E-02
4.478E 01	7.124E 00	1.873E 02	2.494E-03	5.736E-02
4.480E 01	3.043E-01	1.876E 02	2.494E-03	5.733E-02
4.625E 01	2.202E 01	2.096E 02	3.004E-03	5.789E-02
4.626E 01	1.429E-01	2.097E 02	2.655E-03	6.662E-02
4.730E 01	1.270E 01	2.224E 02	2.683E-03	6.995E-02
4.731E 01	6.526E-02	2.225E 02	2.805E-03	6.647E-02
4.811E 01	9.290E 00	2.318E 02	2.734E-03	6.417E-02
4.874E 01	7.989E 00	2.398E 02	3.064E-03	5.179E-02
4.875E 01	1.272E-01	2.399E 02	2.689E-03	6.007E-02
4.928E 01	6.318E 00	2.462E 02	2.621E-03	5.400E-02
5.069E 01	1.583E 01	2.621E 02	2.500E-03	4.685E-02
5.279E 01	2.078E 01	2.828E 02	2.504E-03	3.936E-02
5.329E 01	4.652E 00	2.875E 02	2.582E-03	3.625E-02
5.404E 01	6.780E 00	2.943E 02	2.570E-03	3.614E-02
5.480E 01	6.506E 00	3.008E 02	2.629E-03	3.514E-02
5.576E 01	7.564E 00	3.083E 02	2.728E-03	3.729E-02
5.623E 01	2.220E 00	3.106E 02	2.819E-03	3.481E-02
5.628E 01	3.361E-01	3.109E 02	3.091E-03	3.101E-02
5.642E 01	8.804E-01	3.118E 02	3.096E-03	3.101E-02
5.650E 01	5.056E-01	3.123E 02	3.161E-03	3.069E-02
5.678E 01	1.725E 00	3.140E 02	3.116E-03	3.164E-02
5.701E 01	1.336E 00	3.153E 02	3.137E-03	3.167E-02
5.773E 01	3.929E 00	3.193E 02	3.189E-03	3.114E-02
5.875E 01	4.956E 00	3.242E 02	3.180E-03	3.123E-02
6.076E 01	1.002E 01	3.342E 02	3.114E-03	3.288E-02
6.218E 01	7.950E 00	3.422E 02	3.110E-03	3.314E-02
6.465E 01	1.534E 01	3.575E 02	3.090E-03	3.037E-02
6.502E 01	2.367E 00	3.599E 02	3.124E-03	2.861E-02
6.506E 01	2.458E-01	3.601E 02	3.195E-03	2.932E-02
6.526E 01	1.258E 00	3.614E 02	3.182E-03	2.902E-02
6.692E 01	1.057E 01	3.720E 02	2.988E-03	1.898E-02
6.759E 01	3.864E 00	3.758E 02	2.964E-03	1.747E-02
6.836E 01	4.130E 00	3.800E 02	2.912E-03	1.431E-02
6.908E 01	3.416E 00	3.834E 02	2.872E-03	1.223E-02
6.969E 01	2.613E 00	3.860E 02	2.844E-03	1.085E-02
7.064E 01	3.591E 00	3.896E 02	2.798E-03	8.816E-03
7.107E 01	1.468E 00	3.911E 02	2.782E-03	8.201E-03
7.260E 01	4.788E 00	3.959E 02	2.751E-03	7.099E-03
7.275E 01	4.148E-01	3.963E 02	2.740E-03	6.754E-03
7.350E 01	1.768E 00	3.980E 02	2.672E-03	4.931E-03
7.351E 01	2.962E-03	3.980E 02	2.671E-03	4.921E-03
7.483E 01	1.081E 00	3.991E 02	2.730E-03	6.717E-03
7.768E 01	2.323E 00	4.014E 02	2.723E-03	6.850E-03
8.158E 01	2.213E 00	4.037E 02	2.642E-03	4.977E-03
8.439E 01	1.008E 00	4.047E 02	2.633E-03	5.024E-03
8.725E 01	4.636E-01	4.051E 02	2.670E-03	6.339E-03
8.726E 01	0.000	4.051E 02	2.670E-03	6.342E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1459.	(LBF)
MEASURED THRUST	1588.	(LBF)
CALCULATED SPECIFIC IMPULSE	2730.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2972.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5046	
MEASURED THRUST COEFFICIENT	0.5494	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6763.	(LBF)
NET THRUST	1570.	(LBF)
SPECIFIC IMPULSE	2938.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5430	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.7	(LBF)
INLET MOMENTUM CHANGE	-972.7	(LBF)
COMBUSTOR FRICTION DRAG	242.2	(LBF)
COMBUSTOR STRUT DRAG	98.93	(LBF)
COMBUSTOR MOMENTUM CHANGE	1178.	(LBF)
NOZZLE FRICTION DRAG	45.22	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1253.	(LBF)
NOZZLE PRESSURE INTEGRAL	1298.	(LBF)
EXTERNAL FRICTION DRAG	51.37	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1307.	(LBF)
TOTAL EXTERNAL DRAG	-1359.	(LBF)
TOTAL STRUT DRAG	98.93	(LBF)
CAVITY FORCE	-1245.	(LBF)
CALCULATED LOAD CELL FORCE	-1144.	(LBF)
MEASURED LOAD CELL FORCE	-1015.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-145.2, -116.8,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2849	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.169	(IN)
NOZZLE SHROUD TRAILING EDGE	73.509	(IN)
NOZZLE PLUG TRAILING EDGE	87.261	(IN)
STRUT LEADING EDGE	56.425	(IN)
STRUT TRAILING EDGE	65.025	(IN)
COMBUSTOR EXIT	65.025	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8655	
ADDITIVE DRAG COEFFICIENT	0.6110	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2767	
DELTA PT2	0.1393	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4516	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2816	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9073	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9187	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9214	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8882	
ENTHALPY AT PO - SUPERSONIC	-18.25	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-2.24	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0162
EQUIVALENCE RATIO	0.508
COMBUSTOR EFFICIENCY	0.902
TOTAL PRESSURE RATIO	0.2218
COMBUSTOR EFFECTIVENESS	0.8293
INJECTOR DISCHARGE COEFFICIENTS	0.8574, 0.7751,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9565
NOZZLE COEFFICIENT - CT	0.8841
PROCESS EFFICIENCY	0.8986
KINETIC ENERGY EFFICIENCY	0.9028

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.270	
1C	44.380	
2A	48.745	D
2C	46.250	E
3A	54.035	
3B	56.220	
4	44.770	

Reading 96

t = 134.44 sec.

READING = 0096 BLOCK = 34 TIME = 130.040 MACH 5.2 PT = 423.749 TT = 2215.9

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

X	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	D	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4															
0.000	423.749	2216	440.7(	570)	1.3192	28.814	2246											
0.000	0.597	373	-39.7(	90)	1.3982	28.814	948	5.170	4903	1.778	0.14640	30.470	0.8126	4767	11.154	156.5		
SPIKE TIP NS		2	0 7															
0.600	22.762	2216	440.7(	570)	1.3193	28.814	2246											
0.600	20.840	2169	427.3(	557)	1.3209	28.814	2223	0.368	817	1.980	0.14640	30.470	0.8126	5111	1.659	167.8		
WIND TUNNEL		3	0 0															
0.000	423.749	2216	440.7(	570)	1.3192	28.814	2246											
0.000	0.677	386	-36.4(	93)	1.3985	28.814	965	5.061	4886	1.776	0.15959	33.215	0.8126	5185	12.117	156.1		
SPIKE TIP NS		4	0 0															
0.600	22.762	2216	440.7(	570)	1.3193	28.814	2246											
0.600	20.425	2158	424.3(	554)	1.3213	28.814	2218	0.408	904	1.980	0.15959	33.215	0.8126	5185	2.243	156.1		
INLET THROAT		5	0 4															
40.400	160.244	2170	427.6(	557)	1.3208	28.814	2224											
40.400	22.432	1318	195.0(	325)	1.3599	28.814	1759	1.939	3411	1.839	1.08229	30.470	0.1099	3862	57.374	126.7		
INLET UPNRSK		6	0 3															
40.400	160.244	2170	427.6(	557)	1.3208	28.814	2224											
40.400	16.860	1259	179.6(	309)	1.3636	28.814	1721	2.047	3522	1.839	0.98390	30.470	0.1209	3920	53.859	128.6		
INLET DNNRSK		7	0 4															
40.400	109.441	2170	427.6(	557)	1.3209	28.814	2224											
40.400	89.284	2064	397.8(	527)	1.3246	28.814	2172	0.562	1220	1.866	0.98390	30.470	0.1209	3920	18.662	128.6		
COMBUSTOR	0	8	1 4															
40.410	160.063	2170	427.5(	557)	1.3208	28.814	2224											
40.410	22.448	1319	195.2(	325)	1.3599	28.814	1759	1.938	3410	1.840	1.08215	30.470	0.1099	3861	57.345	126.7		
COMBUSTOR	0	9	2 4															
41.372	135.654	2162	425.3(	555)	1.3211	28.814	2220											
41.372	26.150	1428	223.9(	353)	1.3533	28.814	1826	1.738	3174	1.850	1.08369	30.470	0.1098	3742	53.463	122.8		
COMBUSTOR	0	10	3 4															
41.437	133.815	2161	425.2(	554)	1.3211	28.814	2220											
41.437	26.501	1438	226.5(	356)	1.3527	28.814	1832											
								1.721	3153	1.851	1.08347	30.470	0.1098	3731	53.089	122.5		
COMBUSTOR	0	11	4 4															
41.500	132.096	2161	425.0(	554)	1.3212	28.814	2219											
41.500	26.879	1448	229.0(	359)	1.3522	28.814	1838	1.704	3131	1.852	1.08393	30.470	0.1098	3721	52.742	122.1		
COMBUSTOR	0	12	5 5															
42.460	116.620	2151	422.3(	552)	1.3215	28.814	2215											
42.460	30.299	1535	252.3(	382)	1.3472	28.814	1889	1.544	2916	1.859	1.07328	30.470	0.1108	3622	48.643	118.9		
COMBUSTOR	0	13	6 5															
44.157	103.904	2134	417.3(	547)	1.3221	28.814	2206											
44.157	32.273	1593	266.0(	397)	1.3441	28.814	1922	1.422	2734	1.865	1.03247	30.470	0.1152	3542	43.868	116.2		
COMBUSTOR	0	14	7 4															
44.310	102.987	2132	416.9(	546)	1.3222	28.814	2205											
44.310	32.697	1601	269.4(	399)	1.3438	28.814	1927	1.408	2712	1.865	1.03179	30.470	0.1153	3533	43.487	115.9		
COMBUSTOR	0	15	8 4															
44.800	99.859	2127	415.6(	545)	1.3223	28.814	2203											
44.800	34.099	1627	277.1(	407)	1.3424	28.814	1942	1.356	2632	1.866	1.02826	30.470	0.1157	3503	42.056	115.0		
COMBUSTOR	0	16	9 5															
44.872	99.393	2127	415.4(	545)	1.3223	28.814	2203											
44.872	34.337	1632	278.3(	408)	1.3422	28.814	1944	1.347	2619	1.867	1.02759	30.470	0.1158	3498	41.823	114.8		
COMBUSTOR	0	17	10 5															
45.597	95.505	2121	413.6(	543)	1.3224	28.814	2200											
45.597	34.649	1650	283.1(	413)	1.3413	28.814	1954	1.308	2555	1.869	1.00652	30.470	0.1182	3475	39.970	114.0		
COMBUSTOR	0	18	11 5															
46.260	93.110	2116	412.2(	541)	1.3227	28.814	2197											
46.260	32.544	1628	277.3(	407)	1.3424	28.814	1942	1.338	2598	1.870	0.96949	30.470	0.1227	3484	39.143	114.4		

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              P      T      H          GAMMA  MOLWT SONV  MACH  VEL   S      W/A      W      A/AC    MOMTM   G     IVAC  PHI  ETAC
COMBUSTOR       0   19   12    5
47.310     92.017 2108  410.0( 537) 1.3230 28.814 2193
47.310     27.091 1552  256.7( 385) 1.3460 28.814 1899 1.459 2769 1.869 0.90166 30.470 0.1319    3538 38.806 116.1
COMBUSTOR       0   20   13    4
47.397     92.045 2107  409.6( 539) 1.3230 28.814 2193
47.397     26.535 1543  254.3( 384) 1.3468 28.814 1893 1.473 2789 1.869 0.89466 30.470 0.1330    3545 38.780 116.4
COMBUSTOR       0   21   14    5
48.110     92.217 2102  406.4( 533) 1.3232 28.814 2191
48.110     22.720 1479  236.9( 366) 1.3504 28.814 1856 1.579 2929 1.869 0.83972 30.470 0.1417    3598 38.221 118.1
COMBUSTOR       0   22   15    4
48.847     90.370 2098  407.1( 536) 1.3234 28.814 2189
48.847     18.986 1414  220.2( 350) 1.3541 28.814 1818 1.683 3058 1.869 0.76550 30.470 0.1554    3652 36.382 119.9
COMBUSTOR       0   23   16    5
49.377     88.310 2095  406.4( 536) 1.3235 28.814 2187
49.377     16.926 1379  210.8( 340) 1.3562 28.814 1796
                                                       1.741 3128 1.871 0.71593 30.470 0.1662    3682 34.798 120.9
COMBUSTOR       0   24   17    4
50.787     83.694 2087  404.2( 534) 1.3237 28.814 2184
50.787     12.977 1299  189.9( 319) 1.3611 28.814 1746 1.875 3275 1.873 0.61017 30.470 0.1950    3750 31.055 123.1
COMBUSTOR       0   25   18    4
52.887     78.620 2078  401.5( 531) 1.3241 28.814 2179
52.887      9.426 1206  166.1( 296) 1.3669 28.814 1687 2.035 3432 1.876 0.50010 30.470 0.2379    3825 26.677 125.5
COMBUSTOR       0   26   19    4
53.387     77.254 2076  401.0( 530) 1.3241 28.814 2178
53.387      8.841 1191  162.1( 292) 1.3678 28.814 1677 2.062 3457 1.877 0.47967 30.470 0.2480    3837 25.773 125.9
COMBUSTOR       0   27   20    4
54.137     75.315 2073  400.3( 530) 1.3242 28.814 2177
54.137      8.126 1170  156.7( 286) 1.3692 28.814 1663 2.100 3491 1.879 0.45215 30.470 0.2631    3854 24.531 126.5
COMBUSTOR       0   28   21    5
54.897     73.398 2071  399.6( 529) 1.3243 28.814 2175
54.897      7.502 1152  152.0( 282) 1.3703 28.814 1650 2.133 3520 1.880 0.42758 30.470 0.2782    3868 23.390 126.9
COMBUSTOR       0   29   22    4
55.760     71.386 2068  398.9( 528) 1.3244 28.814 2174
55.760      [illegible] 1133  147.2( 277) 1.3715 28.814 1637 2.168 3549 1.882 0.40309 30.470 0.2951    3882 22.231 127.4
COMBUSTOR       0   30   23    4
56.322     60.537 2067  398.4( 528) 1.3245 28.814 2173
56.322      5.310 1102  139.5( 269) 1.3734 28.814 1616 2.227 3600 1.893 0.32331 30.470 0.3679    3909 18.087 128.3
COMBUSTOR       0   31   24    5
56.377     60.496 2067  398.4( 528) 1.3245 28.814 2173
56.377      5.286 1101  139.2( 269) 1.3735 28.814 1615 2.230 3602 1.893 0.32240 30.470 0.3690    3910 18.045 128.3
COMBUSTOR       0   32   25    5
56.517     60.349 2066  398.3( 528) 1.3245 28.814 2173
56.517      5.229 1098  138.5( 268) 1.3736 28.814 1613 2.235 3606 1.893 0.32014 30.470 0.3716    3913 17.940 128.4
COMBUSTOR       0   33   26    4
56.597     61.219 2066  398.2( 528) 1.3245 28.814 2173
56.597      5.277 1097  138.1( 268) 1.3737 28.814 1612 2.238 3608 1.892 0.32373 30.470 0.3675    3914 18.153 128.4
COMBUSTOR       0   34   27    4
56.877     61.549 2065  398.0( 527) 1.3245 28.814 2173
56.877      5.224 1092  136.8( 266) 1.3741 28.814 1609 2.248 3616 1.891 0.32266 30.470 0.3687    3918 18.131 128.6
COMBUSTOR       0   35   28    4
57.103     61.854 2065  397.9( 527) 1.3245 28.814 2172
57.103      5.188 1088  135.8( 265) 1.3743 28.814 1606 2.255 3621 1.891 0.32205 30.470 0.3694    3920 18.124 128.7
COMBUSTOR       0   36   29    4
57.827     61.934 2063  397.4( 527) 1.3246 28.814 2171
57.827      5.041 1078  133.3( 263) 1.3749 28.814 1599 2.273 3635 1.891 0.31700 30.470 0.3753    3927 17.908 128.9
COMBUSTOR       0   37   30    4
58.847     62.174 2061  396.6( 526) 1.3247 28.814 2170
58.847      4.968 1071  131.6( 261) 1.3753 28.814 1594
                                                       2.285 3643 1.890 0.31498 30.470 0.3777    3930 17.831 129.0
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READING = 0096  BLOCK =  34  TIME = 134.040  MACH  5.6  PT = 423.749  TT = 2215.9                                   PAGE  3

                 P      T       H                 GAMMA  MOLWT SONV  MACH  VEL    S      W/A      W      A/AP    MOMTM   Q     IVAC  PHI  ETAC
COMBUSTOR          0   38   31    5
60.857     63.155 2058   395.9( 525) 1.3248 28.814 2169
60.857      5.200 1078   133.4( 263) 1.3749 28.814 1599 2.266 3624 1.889 0.32594 30.470 0.3650   3918 16.358 128.6
COMBUSTOR          0   39   32    5
62.277     63.889 2056   395.4( 525) 1.3249 28.814 2168
62.277      5.394 1085   135.0( 264) 1.3745 28.814 1604 2.251 3610 1.888 0.33477 30.470 0.3553   3909 18.780 128.3
NOZZLE   AE           40   33    4
87.353     63.889 2056   395.4( 525) 1.3249 28.814 2168
87.353      0.378  514    -5.5( 124) 1.3969 28.814 1114 4.021 4479 1.888 0.06141 30.470 1.0371   4429  4.275 145.4
NOZZLE   PO           41   34    4
87.353     63.889 2056   395.4( 525) 1.3249 28.814 2168
87.353      0.597  586    11.8( 141) 1.3979 28.814 1188 3.686 4381 1.888 0.08327 30.470 1.0287   4367  5.669 143.3
FICTIVE COMBUSTR      65   58    0
62.277    140.244 2056   395.4( 525) 1.3249 28.814 2168
62.277      0.597  450   -20.9( 109) 1.3991 28.814 1043 4.376 4564 1.824 0.11275 30.470 1.0551   4483  7.997 147.1
FICTIVE NOZZLE        66   59    0
87.353    192.275 2043   391.8( 521) 1.3253 28.814 2161
87.353      0.225  321   -52.1(  77) 1.3969 28.814  880 5.354 4713 1.610 0.06141 30.470 1.0371   4575  4.496 150.1
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READING = 0090 BLOCK = 34 TIME = 134.440 MACH 5.2 PT = 423.749 TT = 2215.9

XABS	P-IB	P-OB	POA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.981E-01	1.455E 00	0.000	-5.562E-01	0.000	0.000	0.000	2.470E-02	2.438E 00	3.434E-03	0.000	0.000
1.836E 01	1.455E 00	0.000	-4.839E 01	0.000	0.000	0.000	1.634E 02	2.438E 00	3.434E-03	0.000	0.000
3.070E 01	3.255E 00	0.000	-2.393E 02	0.000	0.000	0.000	5.053E 02	5.454E 00	7.681E-03	0.000	0.000
3.508E 01	4.354E 00	0.000	-4.859E 02	0.000	0.000	0.000	6.804E 02	7.295E 00	1.027E-02	0.000	0.000
3.525E 01	4.858E 00	6.140E 00	-5.617E 02	0.000	0.000	0.000	6.881E 02	8.139E 00	1.146E-02	1.029E 01	1.449E-02
3.526E 01	4.875E 00	6.123E 00	-5.618E 02	0.000	0.000	0.000	6.884E 02	8.168E 00	1.150E-02	1.026E 01	1.445E-02
3.555E 01	5.710E 00	5.342E 00	-5.722E 02	0.000	0.000	0.000	7.174E 02	9.567E 00	1.347E-02	8.951E 00	1.261E-02
3.593E 01	5.644E 00	4.325E 00	-5.945E 02	-1.736E 02	-1.736E 02	0.000	7.557E 02	9.456E 00	1.332E-02	7.247E 00	1.021E-02
3.606E 01	5.620E 00	9.155E 00	-6.000E 02	-1.750E 02	-1.750E 02	0.000	7.694E 02	9.416E 00	1.326E-02	1.534E 01	2.160E-02
3.644E 01	5.030E 00	2.280E 01	-5.780E 02	-1.788E 02	-1.788E 02	0.000	8.084E 02	8.427E 00	1.187E-02	3.820E 01	5.381E-02
3.648E 01	4.962E 00	2.250E 01	-5.748E 02	-1.792E 02	-1.792E 02	0.000	8.129E 02	8.314E 00	1.171E-02	3.770E 01	5.310E-02
3.701E 01	5.857E 00	1.884E 01	-5.473E 02	-2.190E 02	-1.849E 02	-3.414E 01	8.689E 02	9.814E 00	1.382E-02	3.157E 01	4.446E-02
3.707E 01	6.064E 00	1.845E 01	-5.476E 02	-2.218E 02	-1.855E 02	-3.630E 01	8.750E 02	1.016E 01	1.431E-02	3.091E 01	4.354E-02
3.739E 01	7.229E 00	1.437E 01	-5.553E 02	-2.373E 02	-1.890E 02	-4.828E 01	9.094E 02	1.211E 01	1.706E-02	2.409E 01	3.392E-02
3.792E 01	9.158E 00	1.365E 01	-6.024E 02	-2.630E 02	-1.952E 02	-6.775E 01	9.672E 02	1.534E 01	2.161E-02	2.287E 01	3.221E-02
3.803E 01	9.570E 00	1.423E 01	-6.132E 02	-2.685E 02	-1.966E 02	-7.190E 01	9.797E 02	1.603E 01	2.258E-02	2.384E 01	3.358E-02
3.841E 01	1.457E 01	1.615E 01	-6.569E 02	-2.872E 02	-2.016E 02	-8.567E 01	1.022E 03	2.441E 01	3.438E-02	2.706E 01	3.811E-02
3.875E 01	1.913E 01	1.880E 01	-7.043E 02	-3.050E 02	-2.068E 02	-9.818E 01	1.061E 03	3.204E 01	4.513E-02	3.150E 01	4.436E-02
3.888E 01	2.081E 01	1.977E 01	-7.212E 02	-3.117E 02	-2.089E 02	-1.028E 02	1.075E 03	3.486E 01	4.910E-02	3.313E 01	4.667E-02
3.901E 01	2.257E 01	2.074E 01	-7.351E 02	-3.189E 02	-2.112E 02	-1.076E 02	1.090E 03	3.782E 01	5.327E-02	3.475E 01	4.895E-02
3.939E 01	2.138E 01	2.347E 01	-7.661E 02	-3.397E 02	-2.185E 02	-1.213E 02	1.134E 03	3.583E 01	5.046E-02	3.933E 01	5.540E-02
3.950E 01	2.102E 01	1.931E 01	-7.718E 02	-3.462E 02	-2.208E 02	-1.254E 02	1.147E 03	3.523E 01	4.962E-02	3.235E 01	4.556E-02
3.988E 01	2.016E 01	5.450E 00	-8.015E 02	-3.682E 02	-2.295E 02	-1.387E 02	1.191E 03	3.377E 01	4.757E-02	9.131E 00	1.286E-02
4.000E 01	1.987E 01	7.497E 00	-8.144E 02	-3.756E 02	-2.325E 02	-1.431E 02	1.205E 03	3.330E 01	4.690E-02	1.256E 01	1.769E-02
4.038E 01	2.355E 01	1.375E 01	-8.441E 02	-3.985E 02	-2.424E 02	-1.561E 02	1.249E 03	3.947E 01	5.559E-02	2.304E 01	3.245E-02
4.040E 01	2.378E 01	1.357E 01	-8.462E 02	-3.999E 02	-2.430E 02	-1.569E 02	1.252E 03	3.985E 01	5.613E-02	2.273E 01	3.202E-02
4.041E 01	2.388E 01	1.349E 01	-8.467E 02	-4.006E 02	-2.433E 02	-1.572E 02	1.253E 03	4.001E 01	5.636E-02	2.260E 01	3.183E-02
4.137E 01	3.328E 01	5.971E 00	-9.514E 02	-4.689E 02	-2.721E 02	-1.968E 02	1.367E 03	5.577E 01	7.854E-02	1.000E 01	1.409E-02
4.144E 01	3.392E 01	5.462E 00	-9.607E 02	-4.741E 02	-2.742E 02	-1.999E 02	1.375E 03	5.683E 01	8.004E-02	9.152E 00	1.289E-02
4.150E 01	3.454E 01	5.755E 00	-9.702E 02	-4.793E 02	-2.763E 02	-2.030E 02	1.382E 03	5.787E 01	8.150E-02	9.642E 00	1.358E-02
4.246E 01	2.032E 01	1.018E 01	-1.054E 03	-5.610E 02	-3.099E 02	-2.511E 02	1.497E 03	3.405E 01	4.796E-02	1.706E 01	2.403E-02
4.416E 01	2.968E 01	1.801E 01	-1.110E 03	-7.116E 02	-3.692E 02	-3.425E 02	1.702E 03	4.973E 01	7.004E-02	3.017E 01	4.250E-02
4.431E 01	3.052E 01	1.834E 01	-1.117E 03	-7.252E 02	-3.742E 02	-3.509E 02	1.721E 03	5.114E 01	7.203E-02	3.072E 01	4.327E-02
4.480E 01	3.322E 01	1.938E 01	-1.140E 03	-7.659E 02	-3.902E 02	-3.757E 02	1.781E 03	5.567E 01	7.841E-02	3.247E 01	4.573E-02
4.487E 01	3.271E 01	1.953E 01	-1.144E 03	-7.716E 02	-3.925E 02	-3.790E 02	1.789E 03	5.480E 01	7.719E-02	3.272E 01	4.609E-02
4.560E 01	2.750E 01	2.107E 01	-1.157E 03	-8.242E 02	-4.152E 02	-4.089E 02	1.878E 03	4.608E 01	6.490E-02	3.531E 01	4.973E-02
4.626E 01	2.273E 01	2.224E 01	-1.139E 03	-8.682E 02	-4.352E 02	-4.330E 02	1.960E 03	3.809E 01	5.365E-02	3.726E 01	5.247E-02
4.731E 01	1.519E 01	2.407E 01	-1.072E 03	-9.364E 02	-4.652E 02	-4.712E 02	2.090E 03	2.545E 01	3.584E-02	4.033E 01	5.681E-02
4.740E 01	1.472E 01	2.422E 01	-1.064E 03	-9.420E 02	-4.676E 02	-4.744E 02	2.101E 03	2.467E 01	3.475E-02	4.059E 01	5.717E-02
4.811E 01	1.091E 01	1.960E 01	-1.002E 03	-9.848E 02	-4.867E 02	-4.981E 02	2.190E 03	1.828E 01	2.575E-02	3.284E 01	4.625E-02
4.885E 01	1.482E 01	1.482E 01	-9.398E 02	-1.023E 03	-5.056E 02	-5.176E 02	2.282E 03	2.484E 01	3.498E-02	2.484E 01	3.498E-02
4.938E 01	1.139E 01	1.139E 01	-9.036E 02	-1.047E 03	-5.186E 02	-5.286E 02	2.348E 03	1.908E 01	2.687E-02	1.908E 01	2.687E-02
5.079E 01	1.063E 01	1.063E 01	-8.222E 02	-1.110E 03	-5.509E 02	-5.593E 02	2.526E 03	1.781E 01	2.509E-02	1.781E 01	2.509E-02
5.289E 01	6.350E 00	6.350E 00	-7.288E 02	-1.194E 03	-5.926E 02	-6.011E 02	2.792E 03	1.064E 01	1.499E-02	1.064E 01	1.499E-02
5.339E 01	6.067E 00	6.067E 00	-7.126E 02	-1.209E 03	-6.014E 02	-6.077E 02	2.856E 03	1.016E 01	1.432E-02	1.016E 01	1.432E-02
5.414E 01	5.388E 00	5.388E 00	-6.905E 02	-1.230E 03	-6.139E 02	-6.164E 02	2.952E 03	9.027E 00	1.271E-02	9.027E 00	1.271E-02
5.490E 01	4.700E 00	4.700E 00	-6.709E 02	-1.251E 03	-6.256E 02	-6.254E 02	3.049E 03	7.875E 00	1.109E-02	7.875E 00	1.109E-02
5.576E 01	4.504E 00	4.504E 00	-6.510E 02	-1.274E 03	-6.377E 02	-6.358E 02	3.160E 03	7.546E 00	1.063E-02	7.546E 00	1.063E-02
5.632E 01	4.376E 00	4.376E 00	-6.217E 02	-1.287E 03	-6.443E 02	-6.428E 02	3.209E 03	7.332E 00	1.033E-02	7.332E 00	1.033E-02
5.638E 01	1.000E 00	4.364E 00	-6.204E 02	-1.288E 03	-6.449E 02	-6.435E 02	3.216E 03	1.675E 00	2.360E-03	7.311E 00	1.030E-02
5.652E 01	1.000E 00	4.332E 00	-6.176E 02	-1.292E 03	-6.463E 02	-6.452E 02	3.234E 03	1.675E 00	2.360E-03	7.258E 00	1.022E-02
5.660E 01	4.314E 00	4.314E 00	-6.159E 02	-1.293E 03	-6.471E 02	-6.462E 02	3.244E 03	7.227E 00	1.018E-02	7.227E 00	1.018E-02
5.688E 01	4.250E 00	4.250E 00	-6.103E 02	-1.299E 03	-6.498E 02	-6.496E 02	3.280E 03	7.121E 00	1.003E-02	7.121E 00	1.003E-02
5.710E 01	4.226E 00	4.226E 00	-6.062E 02	-1.304E 03	-6.519E 02	-6.523E 02	3.309E 03	7.081E 00	9.973E-03	7.081E 00	9.973E-03
5.783E 01	4.150E 00	4.150E 00	-5.948E 02	-1.319E 03	-6.580E 02	-6.607E 02	3.402E 03	6.953E 00	9.794E-03	6.953E 00	9.794E-03
5.885E 01	3.937E 00	3.937E 00	-5.854E 02	-1.337E 03	-6.651E 02	-6.718E 02	3.532E 03	6.597E 00	9.292E-03	6.597E 00	9.292E-03

HEADING = 0096 BLOCK = 34 TIME = 134.440 MACH 5.2 PT = 423.749 TT = 2215.9

XABS	P-IP	P-OB	PPA	GOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.086E 01	2.250E 00	2.250E 00	-5.847E 02	-1.364E 03	-6.750E 02	-6.894E 02	3.790E 03	3.770E 00	5.310E-03	3.770E 00	5.310E-03
6.228E 01	1.744E 00	1.744E 00	-5.847E 02	-1.380E 03	-6.806E 02	-6.993E 02	3.972E 03	2.922E 00	4.115E-03	2.922E 00	4.115E-03
6.474E 01	5.359E 00	5.359E 00	-5.847E 02	-1.409E 03	-6.921E 02	-7.155E 02	4.269E 03	8.979E 00	1.265E-02	8.979E 00	1.265E-02
6.512E 01	3.500E 00	5.910E 00	-5.847E 02	-1.412E 03	-6.941E 02	-7.179E 02	4.337E 03	5.864E 00	8.260E-03	9.903E 00	1.395E-02
6.516E 01	3.500E 00	5.969E 00	-5.847E 02	-1.412E 03	-6.943E 02	-7.182E 02	4.342E 03	5.864E 00	8.260E-03	1.000E 01	1.409E-02
6.536E 01	3.323E 00	6.262E 00	-5.847E 02	-1.415E 03	-6.953E 02	-7.196E 02	4.368E 03	5.567E 00	7.841E-03	1.049E 01	1.478E-02
6.702E 01	1.850E 00	4.100E 00	-5.382E 02	-1.432E 03	-7.028E 02	-7.294E 02	4.583E 03	3.100E 00	4.366E-03	6.870E 00	9.676E-03
6.769E 01	1.794E 00	2.160E 00	-4.682E 02	-1.437E 03	-7.053E 02	-7.322E 02	4.665E 03	3.006E 00	4.234E-03	3.619E 00	5.097E-03
6.846E 01	1.730E 00	1.961E 00	-4.356E 02	-1.443E 03	-7.079E 02	-7.349E 02	4.760E 03	2.899E 00	4.083E-03	3.286E 00	4.628E-03
6.918E 01	1.752E 00	1.775E 00	-3.885E 02	-1.447E 03	-7.101E 02	-7.370E 02	4.848E 03	2.935E 00	4.134E-03	2.974E 00	4.189E-03
6.979E 01	1.770E 00	8.146E 00	-3.194E 02	-1.451E 03	-7.120E 02	-7.391E 02	4.922E 03	2.966E 00	4.177E-03	1.365E 01	1.922E-02
6.999E 01	1.706E 00	1.023E 01	-2.840E 02	-1.453E 03	-7.126E 02	-7.400E 02	4.946E 03	2.858E 00	4.025E-03	1.715E 01	2.415E-02
7.074E 01	1.464E 00	9.300E-01	-2.020E 02	-1.460E 03	-7.149E 02	-7.447E 02	5.036E 03	2.452E 00	3.454E-03	1.558E 00	2.195E-03
7.117E 01	1.325E 00	1.045E 00	-1.846E 02	-1.464E 03	-7.161E 02	-7.476E 02	5.088E 03	2.220E 00	3.127E-03	1.751E 00	2.467E-03
7.270E 01	1.034E 00	1.455E 00	-1.264E 02	-1.473E 03	-7.200E 02	-7.532E 02	5.273E 03	1.732E 00	2.439E-03	2.438E 00	3.434E-03
7.285E 01	1.005E 00	3.897E 00	-1.189E 02	-1.474E 03	-7.203E 02	-7.534E 02	5.290E 03	1.684E 00	2.372E-03	6.529E 00	9.196E-03
7.341E 01	8.852E-01	1.301E 01	-4.623E 01	-1.476E 03	-7.214E 02	-7.543E 02	5.356E 03	1.483E 00	2.089E-03	2.180E 01	3.071E-02
7.360E 01	8.445E-01	3.700E-01	4.865E 01	-1.476E 03	-7.218E 02	-7.546E 02	5.382E 03	1.415E 00	1.993E-03	6.199E-01	8.732E-04
7.360E 01	8.437E-01	1.010E-01	4.914E 01	-1.476E 03	-7.218E 02	-7.546E 02	5.383E 03	1.414E 00	1.991E-03	1.702E-01	2.397E-04
7.493E 01	5.600E-01	0.000	6.396E 01	-1.481E 03	-7.239E 02	-7.571E 02	5.434E 03	9.383E-01	1.322E-03	0.000	0.000
7.778E 01	4.300E-01	0.000	8.376E 01	-1.484E 03	-7.269E 02	-7.571E 02	5.533E 03	7.205E-01	1.015E-03	0.000	0.000
8.168E 01	5.150E-01	0.000	1.040E 02	-1.486E 03	-7.290E 02	-7.571E 02	5.638E 03	8.629E-01	1.215E-03	0.000	0.000
8.449E 01	5.650E-01	0.000	1.160E 02	-1.487E 03	-7.303E 02	-7.571E 02	5.692E 03	9.467E-01	1.333E-03	0.000	0.000
8.735E 01	5.350E-01	0.000	1.292E 02	-1.490E 03	-7.326E 02	-7.571E 02	5.715E 03	8.964E-01	1.263E-03	0.000	0.000
8.735E 01	5.349E-01	0.000	1.292E 02	-1.490E 03	-7.326E 02	-7.571E 02	5.715E 03	8.963E-01	1.262E-03	0.000	0.000

READING = 0096 BLOCK = 34 TIME = 134.440 MACH 5.2 PT = 423.749 TT = 2215.9

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.337E 02	1.337E 02	2.328E-03	5.197E-02
4.041E 01	1.577E-01	1.339E 02	2.329E-03	5.197E-02
4.137E 01	1.503E 01	1.489E 02	2.441E-03	5.529E-02
4.144E 01	1.009E 00	1.499E 02	2.450E-03	5.556E-02
4.150E 01	9.812E-01	1.509E 02	2.460E-03	5.586E-02
4.246E 01	1.457E 01	1.655E 02	2.545E-03	5.782E-02
4.416E 01	2.448E 01	1.900E 02	2.610E-03	5.741E-02
4.431E 01	2.125E 00	1.921E 02	2.618E-03	5.760E-02
4.480E 01	6.735E 00	1.988E 02	2.649E-03	5.823E-02
4.487E 01	9.745E-01	1.998E 02	2.654E-03	5.833E-02
4.560E 01	9.498E 00	2.095E 02	2.681E-03	5.780E-02
4.626E 01	8.643E 00	2.181E 02	2.668E-03	5.527E-02
4.731E 01	1.338E 01	2.315E 02	2.408E-03	4.983E-02
4.740E 01	1.075E 00	2.326E 02	2.600E-03	4.925E-02
4.811E 01	8.822E 00	2.414E 02	2.549E-03	4.497E-02
4.885E 01	8.675E 00	2.501E 02	2.497E-03	3.965E-02
4.938E 01	5.874E 00	2.560E 02	2.468E-03	3.667E-02
5.079E 01	1.420E 01	2.702E 02	2.390E-03	2.999E-02
5.289E 01	1.806E 01	2.882E 02	2.309E-03	2.346E-02
5.339E 01	3.848E 00	2.921E 02	2.296E-03	2.233E-02
5.414E 01	5.509E 00	2.976E 02	2.276E-03	2.081E-02
5.490E 01	5.289E 00	3.029E 02	2.258E-03	1.948E-02
5.576E 01	5.692E 00	3.086E 02	2.240E-03	1.818E-02
5.632E 01	2.202E 00	3.108E 02	2.203E-03	1.428E-02
5.638E 01	2.803E-01	3.110E 02	2.201E-03	1.424E-02
5.652E 01	7.035E-01	3.117E 02	2.199E-03	1.412E-02
5.660E 01	4.055E-01	3.122E 02	2.192E-03	1.422E-02
5.688E 01	1.416E 00	3.136E 02	2.184E-03	1.411E-02
5.710E 01	1.140E 00	3.147E 02	2.178E-03	1.404E-02
5.783E 01	3.624E 00	3.183E 02	2.165E-03	1.372E-02
5.885E 01	5.046E 00	3.234E 02	2.155E-03	1.356E-02
6.086E 01	1.006E 01	3.334E 02	2.157E-03	1.405E-02
6.228E 01	7.296E 00	3.407E 02	2.156E-03	1.443E-02
8.735E 01	1.251E 01	3.532E 02	2.177E-03	1.383E-02
6.474E 01	1.285E 01	3.679E 02	2.180E-03	1.454E-02
6.512E 01	1.901E 00	3.698E 02	2.153E-03	1.325E-02
6.516E 01	1.955E-01	3.700E 02	2.154E-03	1.331E-02
6.536E 01	9.816E-01	3.710E 02	2.155E-03	1.341E-02
6.702E 01	7.266E 00	3.782E 02	2.061E-03	9.498E-03
6.769E 01	2.110E 00	3.804E 02	1.987E-03	7.039E-03
6.846E 01	2.096E 00	3.825E 02	1.973E-03	6.683E-03
6.918E 01	1.871E 00	3.843E 02	1.962E-03	6.453E-03
6.979E 01	2.186E 00	3.865E 02	2.144E-03	1.362E-02
6.999E 01	9.847E-01	3.875E 02	2.178E-03	1.551E-02
7.074E 01	2.584E 00	3.901E 02	1.886E-03	4.819E-03
7.117E 01	8.388E-01	3.909E 02	1.884E-03	4.781E-03
7.270E 01	3.009E 00	3.939E 02	1.891E-03	4.952E-03
7.285E 01	3.618E-01	3.943E 02	2.006E-03	6.159E-03
7.341E 01	2.324E 00	3.966E 02	2.199E-03	1.715E-02
7.360E 01	7.103E-01	3.973E 02	1.775E-03	2.899E-03
7.360E 01	1.515E-03	3.973E 02	1.738E-03	2.404E-03
7.493E 01	4.702E-01	3.978E 02	1.759E-03	2.722E-03
7.778E 01	8.596E-01	3.987E 02	1.712E-03	2.222E-03
8.168E 01	8.856E-01	3.995E 02	1.728E-03	2.526E-03
8.449E 01	5.034E-01	4.000E 02	1.733E-03	2.694E-03
8.735E 01	2.110E-01	4.003E 02	1.717E-03	2.573E-03

READING = 0096 BLOCK = 34 TIME = 134.440 MACH 5.2 PT = 023.749 TT = 2215.9

X	DDRAG	CDRAG	CF	HC
8.735E 01	0.000	4.003E 02	1.714E-03	2.573E-05

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-267.	(LBF)
MEASURED THRUST	-285.	(LBF)
CALCULATED SPECIFIC IMPULSE	-267.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-285.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.0935	
MEASURED THRUST COEFFICIENT	-.0997	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	133.7	(LBF)
INLET MOMENTUM CHANGE	-979.9	(LBF)
COMBUSTOR FRICTION DRAG	207.0	(LBF)
COMBUSTOR STRUT DRAG	6.94	(LBF)
COMBUSTOR MOMENTUM CHANGE	47.	(LBF)
NOZZLE FRICTION DRAG	45.20	(LBF)
NOZZLE STRUT DRAG	3.42	(LBF)
NOZZLE MOMENTUM CHANGE	665.	(LBF)
NOZZLE PRESSURE INTEGRAL	714.	(LBF)
EXTERNAL FRICTION DRAG	62.02	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1447.	(LBF)
TOTAL EXTERNAL DRAG	-1509.	(LBF)
TOTAL STRUT DRAG	10.37	(LBF)
CAVITY FORCE	-1292.	(LBF)
CALCULATED LOAD CELL FORCE	-3068.	(LBF)
MEASURED LOAD CELL FORCE	-3081.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3767	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.261	(IN)
NOZZLE SHROUD TRAILING EDGE	73.601	(IN)
NOZZLE PLUG TRAILING EDGE	67.353	(IN)
STRUT LEADING EDGE	54.517	(IN)
STRUT TRAILING EDGE	65.117	(IN)
COMBUSTOR EXIT	62.277	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.8126	
ADDITIVE DRAG COEFFICIENT	0.0161	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2535	
DELTA PT2	0.1374	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3782	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2583	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8897	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9103	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9188	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8910	
ENTHALPY AT PO - SUPERSONIC	-13.77	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-0.45	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.3987
COMBUSTOR EFFECTIVENESS	0.8133
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0329
NOZZLE COEFFICIENT - CT	0.9797
PROCESS EFFICIENCY	1.1869
KINETIC ENERGY EFFICIENCY	1.0618

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.362	
1C	44.300	
2A	48.837	
2C	46.250	
3A	54.127	
3B	56.312	
4	44.862	

Reading 96

t = 141.64 sec.

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READING = C096  BLOCK =  42  TIME = 141.640  MACH  5.2  PT = 417.499  TT = 2224.6                                              PAGE  1
                                                        RAMJET PERFORMANCE

                                                    S U M M A R Y   R E P O R T

              P        T      H             GAMMA  MOLWT SONV  MACH  VEL    S      W/A       W     A/AC    MOMTM   G     IVAC  PHI  ETAC
WIND TUNNEL            1    0   4
 0.000   417.499 2225   442.8( 572) 1.3186 28.859 2248
 0.000     0.587  374   -39.2(  90) 1.3983 28.858  950 5.170 4911 1.780 0.14365 29.879 0.8121   4663 10.963 156.7
SPIKE TIP NS           2    0   8
 0.600    22.400 2225   442.8( 572) 1.3187 28.859 2248
 0.600    20.516 2178   429.5( 558) 1.3203 28.859 2226 0.367  817 1.982 0.14365 29.879 0.8121   5026  1.823 166.2
WIND TUNNEL            3    0   0
 0.000   417.499 2225   442.8( 572) 1.3186 28.859 2248
 0.000     0.666  388   -35.8(  93) 1.3985 28.858  967 5.059 4894 1.780 0.15677 32.609 0.8121   5099 11.923 156.4
SPIKE TIP NS           4    0   0
 0.600    22.400 2225   442.8( 572) 1.3187 28.859 2248
 0.600    20.103 2167   426.4( 555) 1.3207 28.859 2220 0.408  905 1.982 0.15677 32.609 0.8121   5099  2.205 156.4
INLET THROAT           5    0   4
40.400   168.002 2179   429.7( 559) 1.3202 28.859 2226
40.400    20.929 1284   186.0( 315) 1.3616 28.858 1736 2.012 3492 1.837 1.06264 32.609 0.1098   4128 62.935 126.6
INLET UPNRBK           6    0   3
40.400   168.002 2179   429.7( 559) 1.3202 28.859 2226
40.400    20.634 1280   184.8( 314) 1.3619 28.858 1733 2.020 3501 1.837 1.05431 32.609 0.1208   4186 57.360 128.4
INLET DNNRBK           7    0   4
40.400   116.866 2179   429.7( 559) 1.3202 28.859 2226
40.400    95.027 2071   399.4( 529) 1.3240 28.859 2174 0.566 1231 1.862 1.05431 32.609 0.1208   4186 20.164 128.4
COMBUSTOR          0   8    1   5
40.410   168.800 2178   429.7( 559) 1.3202 28.859 2226
40.410    24.471 1337   199.7( 329) 1.3584 28.858 1769 1.918 3392 1.837 1.15959 32.609 0.1098   4126 61.134 126.5
COMBUSTOR          0   9    2   5
41.378   140.690 2170   427.4( 556) 1.3205 28.859 2222
41.378    29.023 1460   232.2( 361) 1.3510 28.858 1844 1.695 3125 1.848 1.15981 32.609 0.1098   3983 56.328 122.2
COMBUSTOR          0  10    3   5
41.443   139.039 2170   427.2( 556) 1.3205 28.859 2222
41.443    29.405 1469   234.6( 364) 1.3505 28.858 1849
                                                             1.679 3104 1.849 1.16018 32.609 0.1097   3973 58.974 121.8
COMBUSTOR          0  11    4   5
41.500   137.669 2169   427.0( 556) 1.3206 28.859 2222
41.500    29.779 1478   236.7( 364) 1.3501 28.858 1854 1.665 3086 1.849 1.16130 32.609 0.1096   3964 55.687 121.5
COMBUSTOR          0  12    5   6
42.460   123.024 2159   424.2( 553) 1.3209 28.859 2217
42.460    33.258 1558   258.1( 387) 1.3457 28.858 1900 1.517 2883 1.856 1.14978 32.609 0.1107   3866 51.521 118.5
COMBUSTOR          0  13    6   5
44.163   110.715 2141   419.0( 548) 1.3215 28.859 2208
44.163    35.001 1607   271.3( 401) 1.3431 28.858 1928 1.410 2719 1.861 1.10605 32.609 0.1151   3788 46.735 116.2
COMBUSTOR          0  14    7   5
44.310   109.873 2139   418.6( 548) 1.3216 28.859 2207
44.310    35.347 1613   272.9( 402) 1.3428 28.858 1932 1.398 2700 1.861 1.10514 32.609 0.1152   3760 46.372 115.9
COMBUSTOR          0  15    8   5
44.800   106.856 2134   417.2( 546) 1.3218 28.859 2205
44.800    36.746 1636   279.3( 409) 1.3416 28.858 1945 1.351 2627 1.862 1.10158 32.609 0.1156   3750 44.969 115.0
COMBUSTOR          0  16    9   5
44.878   106.338 2134   417.0( 546) 1.3218 28.859 2204
44.878    36.993 1641   280.4( 410) 1.3414 28.859 1947 1.342 2614 1.863 1.10069 32.609 0.1157   3745 44.712 114.9
COMBUSTOR          0  17   10   5
46.260    99.516 2122   413.6( 543) 1.3222 28.859 2198
46.260    35.144 1637   279.5( 409) 1.3416 28.858 1945 1.332 2590 1.866 1.03836 32.609 0.1226   3729 41.795 114.3
COMBUSTOR          0  18   11   5
47.310    97.373 2113   411.2( 540) 1.3225 28.859 2194
47.310    29.646 1570   261.3( 391) 1.3450 28.858 1907 1.436 2738 1.866 0.96583 32.609 0.1318   3776 41.104 115.8
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READING = 0096 BLOCK = 42 TIME = 141.640 MACH 5.2 PT = 417.499 TT = 2224.6

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	B	W/A	W	A/AC	WOPTP	Θ	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 5														
47.403	97.197	2113	411.0(540)	1.3225	28.859	2194											
47.403	29.187	1563	259.5(389)	1.3454	28.858	1903	1.447	2754	1.866	0.96036	32.609	0.1326	3782	41.096	116.0		
COMBUSTOR	0	20	13 5														
48.110	96.760	2107	409.5(539)	1.3227	28.859	2191											
48.110	25.036	1501	242.9(372)	1.3488	28.858	1868	1.546	2887	1.866	0.89944	32.609	0.1415	3834	40.358	117.6		
COMBUSTOR	0	21	14 21														
48.843	64.541	2125	427.8(615)	1.3260	25.379	2350											
48.843	15.891	1490	231.1(419)	1.3529	25.378	1987	1.578	3137	2.106	0.82922	32.963	0.1552	3845	40.422	116.7	0.37	0.07
COMBUSTOR	0	22	15 21														
48.853	70.714	2011	427.7(581)	1.3313	25.271	2295											
48.853	15.837	1370	230.8(384)	1.3605	25.271	1915	1.639	3139	2.084	0.82813	32.963	0.1554	3846	40.394	116.7	0.37	0.01
COMBUSTOR	0	23	16 21														
49.383	67.300	1992	426.9(575)	1.3322	25.255	2286											
49.383	12.962	1302	216.1(364)	1.3645	25.255	1870	1.737	3248	2.085	0.77451	32.963	0.1662	3879	39.088	117.7	0.37	0.00
COMBUSTOR	0	24	17 21														
50.793	70.020	1983	424.8(572)	1.3326	25.252	2281											
50.793	16.500	1367	236.1(384)	1.3609	25.252	1914	1.606	3072	2.080	0.66010	32.963	0.1950	3972	31.519	120.5	0.37	0.00
COMBUSTOR	0	25	18 21														
52.893	55.919	1968	420.4(570)	1.3332	25.131	2278											
52.893	6.650	1128	165.3(315)	1.3744	25.131	1752	2.040	3573	2.104	0.54289	33.077	0.2379	4079	30.148	123.3	0.38	0.00
COMBUSTOR	0	26	19 21														
53.393	58.548	1961	419.8(568)	1.3336	25.126	2275											
53.393	7.583	1150	173.2(322)	1.3732	25.126	1768	1.987	3512	2.099	0.52071	33.077	0.2480	4093	28.423	123.7	0.38	0.00
COMBUSTOR	0	27	20 21														
54.143	56.342	1957	418.8(567)	1.3337	25.125	2273											
54.143	6.722	1122	165.4(313)	1.3748	25.125	1747	2.038	3561	2.102	0.49083	33.077	0.2631	4114	27.164	124.4	0.38	0.00
COMBUSTOR	0	28	21 21														
54.903	53.711	1954	417.9(566)	1.3338	25.125	2271											
54.903	5.850	1093	156.9(305)	1.3764	25.124	1728	2.095	3614	2.105	0.46416	33.077	0.2782	4132	26.069	124.9	0.38	0.00
COMBUSTOR	0	29	22 21														
55.760	43.340	2074	417.0(602)	1.3281	25.240	2329											
55.760	5.309	1206	151.3(337)	1.3690	25.240	1803	2.022	3646	2.138	0.43775	33.077	0.2950	4150	24.805	125.5	0.38	0.07
COMBUSTOR	0	30	23 21														
56.328	44.531	1968	416.4(570)	1.3331	25.142	2278											
56.328	4.950	1108	158.5(309)	1.3754	25.142	1736	2.082	3614	2.122	0.35104	33.077	0.3679	4181	19.714	126.4	0.38	0.01
COMBUSTOR	0	31	24 21														
56.383	38.427	1952	416.4(565)	1.3339	25.127	2270											
56.383	3.058	1001	129.7(279)	1.3814	25.127	1654	2.289	3787	2.131	0.34999	33.077	0.3690	4183	20.599	126.4	0.38	0.00
COMBUSTOR	0	32	25 21														
56.523	38.379	1949	416.3(564)	1.3340	25.125	2268											
56.523	3.014	996	129.0(277)	1.3817	25.125	1650	2.298	3792	2.131	0.34747	33.077	0.3717	4185	20.475	126.5	0.38	0.00
COMBUSTOR	0	33	26 21														
56.603	45.648	1951	416.2(565)	1.3339	25.127	2269											
56.603	4.777	1079	152.2(301)	1.3771	25.127	1715	2.119	3635	2.117	0.35142	33.077	0.3675	4186	19.851	126.6	0.38	0.00
COMBUSTOR	0	34	27 21														
56.883	45.666	1948	416.0(564)	1.3341	25.125	2268											
56.883	4.600	1066	149.1(297)	1.3779	25.125	1705	2.143	3654	2.117	0.35026	33.077	0.3687	4191	19.891	126.7	0.38	0.00
COMBUSTOR	0	35	28 21														
57.109	46.090	1947	415.8(564)	1.3341	25.125	2267											
57.109	4.659	1067	149.3(297)	1.3778	25.125	1705	2.141	3651	2.116	0.34960	33.077	0.3694	4194	19.837	126.8	0.38	0.00
COMBUSTOR	0	36	29 21														
57.833	34.021	2187	415.2(637)	1.3227	25.353	2382											
57.833	4.850	1332	151.0(373)	1.3608	25.353	1885	1.928	3636	2.171	0.34411	33.077	0.3753	4204	19.442	127.1	0.38	0.13
COMBUSTOR	0	37	30 21														
58.853	44.690	1979	414.4(573)	1.3325	25.158	2283											
58.853	4.837	1107	144.7(309)	1.3754	25.158	1734	2.098	3640	2.123	0.34193	33.077	0.3777	4210	19.340	127.3	0.38	0.02

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                 P      T       H           GAMMA  MOLWT SONV  MACH  VEL    S      W/A       W      A/AC    MOMTM    Q      IVAC  PHI  ETAC
COMBUSTOR      0  38   31  21
60.863     33.514 1944  413.2( 563) 1.3341 25.130 2266
60.863      2.137  938  110.8( 260) 1.3847 25.130 1603 2.427 3890 2.141 0.35383 33.077 0.3650   4199 21.391 126.9 0.38 0.00
COMBUSTOR      0  39   32  21
62.283     48.376 1938  412.5( 561) 1.3344 25.125 2262
62.283      4.819 1057  146.2( 294) 1.3784 25.125 1698 2.150 3650 2.111 0.36342 33.077 0.3553   4191 20.616 126.7 0.38 0.00
COMBUSTOR      0  40   33   4
64.747     42.737 2050  411.1( 595) 1.3290 25.235 2317
64.747      9.004 1376  203.3( 387) 1.3594 25.235 1920 1.680 3224 2.136 0.34448 33.077 0.3749   4179 17.261 126.3 0.38 0.06
COMBUSTOR      0  41   34  21
65.123     43.903 1949  410.8( 564) 1.3338 25.141 2267
65.123      6.671 1193  180.7( 334) 1.3706 25.141 1798 1.887 3393 2.120 0.32025 33.077 0.4032   4178 16.889 126.3 0.38 0.01
COMBUSTOR  REGEN  42   35   3
65.123     43.903 1973  418.3( 572) 1.3330 25.141 2280
65.123      7.257 1237  193.4( 347) 1.3681 25.141 1829 1.834 3355 2.124 0.32025 33.077 0.4032   4198 16.697 126.9 0.38 0.01
NOZZLE  AE        43   36   3
87.359     43.903 1949  410.8( 564) 1.3338 25.141 2267
87.359      0.541  592    9.9( 163) 1.3982 25.141 1279 3.501 4479 2.120 0.06667 33.077 1.9370   4873  4.641 147.3 0.38 0.01
NOZZLF  PO        44   37   3
87.359     43.903 1949  410.8( 564) 1.3338 25.141 2267
87.359      0.666  628   19.9( 173) 1.3973 25.141 1317 3.358 4423 2.120 0.07635 33.077 1.6915   4835  5.247 146.2 0.38 0.01
NOZZLE  AE REGEN  45   38   3
87.359     43.903 1973  418.3( 572) 1.3330 25.141 2280
87.359      0.548  602   12.7( 166) 1.3979 25.141 1290 3.492 4505 2.124 0.06667 33.077 1.9370   4903  4.668 148.2 0.38 0.01
NOZZLE  PO REGEN  46   39   3
87.359     43.903 1973  418.3( 572) 1.3330 25.141 2280
87.359      0.666  636   22.3( 176) 1.3970 25.141 1326 3.357 4451 2.124 0.07579 33.077 1.7039   4867  5.243 147.1 0.38 0.01
FICTIVE COMBUSTR  66   59   0
65.123    168.002 3700  410.8(1115) 1.2525 26.994 2921
65.123      0.666  997 -453.6( 264) 1.3672 27.006 1580 4.151 6577 2.156 0.07677 33.077 1.6821   7048  7.847 213.1 0.38 1.00
FICTIVE NOZZLE    67   60   0
87.359     28.097 1953  412.2( 565) 1.3337 25.141 2270
87.359      0.691  722   46.1( 199) 1.3942 25.141 1411 3.034 4280 2.156 0.06667 33.077 1.9371   4743  4.434 143.4 0.38 0.01
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XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.410E 00	0.000	-5.473E-01	0.000	0.000	0.000	2.470E-02	2.117E 00	3.377E-03	0.000	0.000
1.836E 01	1.410E 00	0.000	-4.690E 01	0.000	0.000	0.000	1.634E 02	2.117E 00	3.377E-03	0.000	0.000
3.070E 01	3.175E 00	0.000	-2.328E 02	0.000	0.000	0.000	5.053E 02	4.767E 00	7.605E-03	0.000	0.000
3.508E 01	4.267E 00	0.000	-4.739E 02	0.000	0.000	0.000	6.804E 02	6.407E 00	1.022E-02	0.000	0.000
3.526E 01	4.774E 00	6.050E 00	-5.491E 02	0.000	0.000	0.000	6.884E 02	7.167E 00	1.143E-02	9.083E 00	1.449E-02
3.527E 01	4.791E 00	6.033E 00	-5.492E 02	0.000	0.000	0.000	6.887E 02	7.192E 00	1.147E-02	9.058E 00	1.445E-02
3.555E 01	5.585E 00	5.243E 00	-5.592E 02	0.000	0.000	0.000	7.171E 02	8.385E 00	1.338E-02	7.871E 00	1.256E-02
3.593E 01	5.544E 00	4.175E 00	-5.815E 02	-1.772E 02	-1.772E 02	0.000	7.560E 02	8.323E 00	1.328E-02	6.268E 00	1.000E-02
3.606E 01	5.530E 00	5.040E 00	-5.894E 02	-1.785E 02	-1.785E 02	0.000	7.690E 02	8.302E 00	1.325E-02	7.566E 00	1.207E-02
3.648E 01	4.880E 00	7.891E 00	-6.060E 02	-1.828E 02	-1.828E 02	0.000	8.126E 02	7.326E 00	1.169E-02	1.185E 01	1.890E-02
3.701E 01	5.715E 00	1.149E 01	-6.241E 02	-2.272E 02	-1.886E 02	-3.855E 01	8.686E 02	8.580E 00	1.369E-02	1.725E 01	2.752E-02
3.739E 01	7.085E 00	1.409E 01	-6.415E 02	-2.478E 02	-1.929E 02	-5.482E 01	9.097E 02	1.064E 01	1.697E-02	2.115E 01	3.374E-02
3.803E 01	9.367E 00	1.602E 01	-6.928E 02	-2.819E 02	-2.006E 02	-8.131E 01	9.793E 02	1.406E 01	2.244E-02	2.406E 01	3.838E-02
3.841E 01	1.438E 01	1.719E 01	-7.326E 02	-3.029E 02	-2.058E 02	-9.714E 01	1.022E 03	2.159E 01	3.445E-02	2.580E 01	4.117E-02
3.875E 01	1.880E 01	1.872E 01	-7.770E 02	-3.222E 02	-2.111E 02	-1.110E 02	1.060E 03	2.823E 01	4.504E-02	2.811E 01	4.484E-02
3.888E 01	2.054E 01	1.932E 01	-7.927E 02	-3.300E 02	-2.135E 02	-1.165E 02	1.075E 03	3.084E 01	4.921E-02	2.901E 01	4.629E-02
3.901E 01	2.221E 01	2.047E 01	-8.075E 02	-3.375E 02	-2.158E 02	-1.217E 02	1.090E 03	3.335E 01	5.320E-02	3.073E 01	4.903E-02
3.939E 01	2.102E 01	2.391E 01	-8.374E 02	-3.610E 02	-2.236E 02	-1.374E 02	1.134E 03	3.156E 01	5.035E-02	3.590E 01	5.728E-02
3.950E 01	2.069E 01	1.985E 01	-8.420E 02	-3.677E 02	-2.259E 02	-1.418E 02	1.146E 03	3.106E 01	4.955E-02	2.980E 01	4.755E-02
3.988E 01	1.980E 01	5.375E 00	-8.709E 02	-3.924E 02	-2.353E 02	-1.572E 02	1.191E 03	2.972E 01	4.741E-02	8.070E 00	1.287E-02
4.000E 01	1.952E 01	5.372E 00	-8.833E 02	-4.002E 02	-2.384E 02	-1.618E 02	1.205E 03	2.931E 01	4.676E-02	8.065E 00	1.287E-02
4.040E 01	2.340E 01	5.361E 00	-9.271E 02	-4.271E 02	-2.497E 02	-1.775E 02	1.252E 03	3.512E 01	5.604E-02	8.049E 00	1.284E-02
4.041E 01	2.349E 01	5.361E 00	-9.281E 02	-4.278E 02	-2.500E 02	-1.779E 02	1.253E 03	3.527E 01	5.627E-02	8.048E 00	1.284E-02
4.138E 01	3.286E 01	5.335E 00	-1.055E 03	-5.040E 02	-2.810E 02	-2.230E 02	1.367E 03	4.934E 01	7.872E-02	8.009E 00	1.278E-02
4.144E 01	3.349E 01	5.333E 00	-1.065E 03	-5.048E 02	-2.833E 02	-2.265E 02	1.375E 03	5.029E 01	8.023E-02	8.006E 00	1.277E-02
4.150E 01	3.405E 01	5.599E 00	-1.073E 03	-5.150E 02	-2.854E 02	-2.297E 02	1.382E 03	5.112E 01	8.156E-02	8.406E 00	1.341E-02
4.246E 01	1.965E 01	1.006E 01	-1.156E 03	-6.058E 02	-3.214E 02	-2.845E 02	1.497E 03	2.950E 01	4.707E-02	1.510E 01	2.410E-02
4.416E 01	2.901E 01	1.797E 01	-1.208E 03	-7.747E 02	-3.852E 02	-3.895E 02	1.703E 03	4.355E 01	6.948E-02	2.698E 01	4.305E-02
4.431E 01	2.982E 01	1.823E 01	-1.214E 03	-7.893E 02	-3.905E 02	-3.988E 02	1.721E 03	4.477E 01	7.142E-02	2.737E 01	4.367E-02
4.480E 01	3.251E 01	1.910E 01	-1.236E 03	-8.350E 02	-4.077E 02	-4.273E 02	1.780E 03	4.881E 01	7.787E-02	2.867E 01	4.575E-02
4.488E 01	3.201E 01	1.924E 01	-1.240E 03	-8.419E 02	-4.104E 02	-4.315E 02	1.790E 03	4.806E 01	7.668E-02	2.888E 01	4.607E-02
4.626E 01	2.315E 01	2.168E 01	-1.237E 03	-9.535E 02	-4.563E 02	-4.972E 02	1.960E 03	3.476E 01	5.546E-02	3.255E 01	5.193E-02
4.731E 01	1.642E 01	2.354E 01	-1.175E 03	-1.030E 03	-4.889E 02	-5.412E 02	2.090E 03	2.466E 01	3.934E-02	3.534E 01	5.637E-02
4.740E 01	1.576E 01	2.370E 01	-1.168E 03	-1.037E 03	-4.917E 02	-5.451E 02	2.101E 03	2.365E 01	3.774E-02	3.558E 01	5.677E-02
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4.884E 01	1.589E 01	1.589E 01	-1.042E 03	-1.129E 03	-5.331E 02	-5.956E 02	2.281E 03	2.386E 01	3.806E-02	2.386E 01	3.806E-02
4.885E 01	1.584E 01	1.584E 01	-1.041E 03	-1.129E 03	-5.333E 02	-5.959E 02	2.282E 03	2.378E 01	3.793E-02	2.378E 01	3.793E-02
4.938E 01	1.296E 01	1.296E 01	-1.001E 03	-1.157E 03	-5.476E 02	-6.093E 02	2.349E 03	1.946E 01	3.105E-02	1.946E 01	3.105E-02
5.079E 01	1.650E 01	1.650E 01	-8.925E 02	-1.227E 03	-5.833E 02	-6.433E 02	2.526E 03	2.477E 01	3.952E-02	2.477E 01	3.952E-02
5.289E 01	6.650E 00	6.650E 00	-7.650E 02	-1.321E 03	-6.300E 02	-6.912E 02	2.793E 03	9.984E 00	1.593E-02	9.984E 00	1.593E-02
5.339E 01	7.583E 00	7.583E 00	-7.465E 02	-1.342E 03	-6.400E 02	-7.022E 02	2.856E 03	1.138E 01	1.816E-02	1.138E 01	1.816E-02
5.414E 01	6.722E 00	6.722E 00	-7.188E 02	-1.374E 03	-6.542E 02	-7.197E 02	2.952E 03	1.009E 01	1.610E-02	1.009E 01	1.610E-02
5.490E 01	5.850E 00	5.850E 00	-6.945E 02	-1.404E 03	-6.676E 02	-7.361E 02	3.050E 03	8.783E 00	1.401E-02	6.783E 00	1.401E-02
5.576E 01	5.309E 00	5.309E 00	-6.705E 02	-1.435E 03	-6.816E 02	-7.531E 02	3.160E 03	7.970E 00	1.272E-02	7.970E 00	1.272E-02
5.633E 01	4.950E 00	4.950E 00	-6.360E 02	-1.453E 03	-6.895E 02	-7.634E 02	3.209E 03	7.432E 00	1.186E-02	7.432E 00	1.186E-02
5.638E 01	1.200E 00	4.916E 00	-6.346E 02	-1.455E 03	-6.902E 02	-7.644E 02	3.216E 03	1.802E 00	2.874E-03	7.380E 00	1.177E-02
5.652E 01	1.200E 00	4.827E 00	-6.314E 02	-1.459E 03	-6.919E 02	-7.669E 02	3.234E 03	1.802E 00	2.874E-03	7.247E 00	1.156E-02
5.660E 01	4.777E 00	4.777E 00	-6.295E 02	-1.461E 03	-6.928E 02	-7.683E 02	3.244E 03	7.171E 00	1.144E-02	7.171E 00	1.144E-02
5.688E 01	4.600E 00	4.600E 00	-6.233E 02	-1.469E 03	-6.960E 02	-7.731E 02	3.280E 03	6.906E 00	1.102E-02	6.906E 00	1.102E-02
5.711E 01	4.659E 00	4.659E 00	-6.188E 02	-1.476E 03	-6.985E 02	-7.770E 02	3.309E 03	6.995E 00	1.116E-02	6.995E 00	1.116E-02
5.783E 01	4.850E 00	4.850E 00	-6.059E 02	-1.495E 03	-7.058E 02	-7.895E 02	3.402E 03	7.281E 00	1.162E-02	7.281E 00	1.162E-02
5.885E 01	4.837E 00	4.837E 00	-5.947E 02	-1.520E 03	-7.146E 02	-8.056E 02	3.532E 03	7.263E 00	1.159E-02	7.263E 00	1.159E-02
6.086E 01	2.137E 00	2.137E 00	-5.939E 02	-1.559E 03	-7.277E 02	-8.312E 02	3.790E 03	3.209E 00	5.120E-03	3.209E 00	5.120E-03
6.228E 01	4.819E 00	4.819E 00	-5.939E 02	-1.583E 03	-7.357E 02	-8.472E 02	3.972E 03	7.234E 00	1.154E-02	7.234E 00	1.154E-02
6.475E 01	9.004E 00	9.004E 00	-5.939E 02	-1.632E 03	-7.516E 02	-8.806E 02	4.289E 03	1.352E 01	2.157E-02	1.352E 01	2.157E-02
6.512E 01	3.700E 00	9.642E 00	-5.939E 02	-1.640E 03	-7.542E 02	-8.862E 02	4.337E 03	5.555E 00	8.862E-03	1.448E 01	2.310E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PBO	P-IH/PTO	P-OB/PBO	P-OB/PTO
6.516E 01	3.700E 00	9.710E 00	-5.939E 02	-1.641E 03	-7.545E 02	-8.868E 02	4.342E 03	5.555E 00	8.862E-03	1.458E 01	2.326E-02
6.536E 01	3.818E 00	1.005E 01	-5.939E 02	-1.645E 03	-7.559E 02	-8.895E 02	4.368E 03	5.732E 00	9.146E-03	1.509E 01	2.407E-02
6.702E 01	4.800E 00	4.075E 00	-5.272E 02	-1.672E 03	-7.667E 02	-9.056E 02	4.583E 03	7.206E 00	1.150E-02	6.118E 00	9.760E-03
6.769E 01	3.553E 00	2.557E 00	-4.512E 02	-1.680E 03	-7.706E 02	-9.093E 02	4.665E 03	5.334E 00	8.510E-03	3.840E 00	6.126E-03
6.846E 01	2.120E 00	3.210E 00	-3.716E 02	-1.689E 03	-7.747E 02	-9.142E 02	4.760E 03	3.183E 00	5.078E-03	4.819E 00	7.688E-03
6.918E 01	2.139E 00	3.820E 00	-3.003E 02	-1.700E 03	-7.783E 02	-9.212E 02	4.848E 03	3.211E 00	5.123E-03	5.735E 00	9.150E-03
6.979E 01	2.155E 00	2.690E 00	-2.427E 02	-1.709E 03	-7.810E 02	-9.283E 02	4.922E 03	3.235E 00	5.162E-03	4.038E 00	6.443E-03
7.074E 01	1.597E 00	9.300E-01	-1.831E 02	-1.724E 03	-7.849E 02	-9.393E 02	5.036E 03	2.398E 00	3.826E-03	1.396E 00	2.228E-03
7.117E 01	1.345E 00	1.031E 00	-1.651E 02	-1.730E 03	-7.865E 02	-9.437E 02	5.088E 03	2.019E 00	3.222E-03	1.548E 00	2.469E-03
7.270E 01	9.033E-01	1.390E 00	-1.092E 02	-1.743E 03	-7.914E 02	-9.519E 02	5.273E 03	1.356E 00	2.164E-03	2.087E 00	3.329E-03
7.285E 01	8.600E-01	1.221E 00	-1.046E 02	-1.744E 03	-7.918E 02	-9.521E 02	5.290E 03	1.291E 00	2.060E-03	1.833E 00	2.924E-03
7.360E 01	7.428E-01	3.750E-01	-7.745E 01	-1.747E 03	-7.936E 02	-9.533E 02	5.374E 03	1.115E 00	1.779E-03	5.630E-01	8.982E-04
7.361E 01	7.422E-01	3.705E-01	-7.671E 01	-1.747E 03	-7.936E 02	-9.533E 02	5.375E 03	1.114E 00	1.778E-03	5.562E-01	8.874E-04
7.493E 01	5.350E-01	0.000	-6.322E 01	-1.752E 03	-7.963E 02	-9.558E 02	5.426E 03	8.032E-01	1.281E-03	0.000	0.000
7.778E 01	4.450E-01	0.000	-4.363E 01	-1.676E 03	-8.002E 02	-8.756E 02	5.525E 03	6.681E-01	1.066E-03	0.000	0.000
8.168E 01	4.600E-01	0.000	-2.429E 01	-1.588E 03	-8.030E 02	-7.853E 02	5.630E 03	6.906E-01	1.102E-03	0.000	0.000
8.449E 01	5.650E-01	0.000	-1.290E 01	-1.590E 03	-8.047E 02	-7.853E 02	5.684E 03	8.482E-01	1.353E-03	0.000	0.000
8.735E 01	4.250E-01	0.000	-9.539E-01	-1.593E 03	-8.080E 02	-7.853E 02	5.707E 03	6.381E-01	1.018E-03	0.000	0.000
8.736E 01	4.247E-01	0.000	-9.512E-01	-1.593E 03	-8.081E 02	-7.853E 02	5.707E 03	6.376E-01	1.017E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.253E 02	1.253E 02	2.299E-03	5.015E-02
4.041E 01	1.692E-01	1.254E 02	2.321E-03	5.555E-02
4.138E 01	1.601E 01	1.415E 02	2.444E-03	5.938E-02
4.144E 01	1.064E 00	1.425E 02	2.452E-03	5.967E-02
4.150E 01	9.411E-01	1.435E 02	2.460E-03	5.998E-02
4.246E 01	1.538E 01	1.588E 02	2.538E-03	6.103E-02
4.416E 01	2.596E 01	1.848E 02	2.593E-03	6.110E-02
4.431E 01	2.163E 00	1.870E 02	2.600E-03	6.126E-02
4.480E 01	7.137E 00	1.941E 02	2.628E-03	6.186E-02
4.488E 01	1.120E 00	1.952E 02	2.633E-03	6.195E-02
4.626E 01	1.939E 01	2.146E 02	2.647E-03	5.871E-02
4.731E 01	1.414E 01	2.288E 02	2.596E-03	5.317E-02
4.740E 01	1.228E 00	2.300E 02	2.590E-03	5.272E-02
4.811E 01	9.211E 00	2.392E 02	2.543E-03	4.812E-02
4.884E 01	1.063E 01	2.498E 02	3.198E-03	3.058E-02
4.885E 01	1.491E-01	2.500E 02	2.694E-03	3.637E-02
4.938E 01	6.959E 00	2.569E 02	2.574E-03	3.262E-02
5.079E 01	1.596E 01	2.729E 02	2.517E-03	3.709E-02
5.289E 01	2.042E 01	2.933E 02	2.458E-03	1.961E-02
5.339E 01	4.532E 00	2.978E 02	2.399E-03	2.161E-02
5.414E 01	6.359E 00	3.042E 02	2.376E-03	1.973E-02
5.490E 01	6.138E 00	3.103E 02	2.360E-03	1.774E-02
5.576E 01	6.595E 00	3.169E 02	2.346E-03	1.640E-02
5.633E 01	2.646E 00	3.196E 02	2.449E-03	1.411E-02
5.638E 01	3.412E-01	3.199E 02	2.355E-03	1.036E-02
5.652E 01	8.557E-01	3.208E 02	2.333E-03	1.031E-02
5.660E 01	4.806E-01	3.213E 02	2.324E-03	1.429E-02
5.688E 01	1.638E 00	3.229E 02	2.298E-03	1.399E-02
5.711E 01	1.314E 00	3.242E 02	2.290E-03	1.412E-02
5.783E 01	4.155E 00	3.284E 02	2.278E-03	1.448E-02
5.885E 01	6.087E 00	3.344E 02	2.524E-03	1.330E-02
6.086E 01	1.287E 01	3.473E 02	2.376E-03	7.839E-03
6.228E 01	8.872E 00	3.562E 02	2.261E-03	1.446E-02
6.475E 01	1.382E 01	3.700E 02	2.355E-03	2.141E-02
6.512E 01	1.980E 00	3.720E 02	2.454E-03	1.668E-02
6.516E 01	2.059E-01	3.722E 02	2.380E-03	1.769E-02
6.536E 01	1.002E 00	3.732E 02	2.387E-03	1.807E-02
6.702E 01	7.702E 00	3.809E 02	2.294E-03	1.346E-02
6.769E 01	2.392E 00	3.833E 02	2.222E-03	1.041E-02
6.846E 01	2.411E 00	3.857E 02	2.192E-03	9.439E-03
6.918E 01	2.213E 00	3.879E 02	2.206E-03	1.018E-02
6.979E 01	1.811E 00	3.897E 02	2.166E-03	8.792E-03
7.074E 01	2.195E 00	3.919E 02	2.051E-03	5.519E-03
7.117E 01	7.914E-01	3.927E 02	2.040E-03	5.278E-03
7.270E 01	2.718E 00	3.954E 02	2.035E-03	5.142E-03
7.285E 01	2.438E-01	3.957E 02	2.019E-03	4.791E-03
7.360E 01	9.583E-01	3.966E 02	1.919E-03	3.043E-03
7.361E 01	1.468E-03	3.966E 02	1.918E-03	3.032E-03
7.493E 01	4.626E-01	3.971E 02	1.907E-03	2.939E-03
7.778E 01	8.098E-01	3.979E 02	1.871E-03	2.554E-03
8.168E 01	8.163E-01	3.987E 02	1.864E-03	2.598E-03
8.449E 01	4.587E-01	3.992E 02	1.886E-03	3.005E-03
8.735E 01	1.850E-01	3.994E 02	1.834E-03	2.425E-03
8.736E 01	0.000	3.994E 02	1.834E-03	2.424E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-437.	(LBF)
MEASURED THRUST	-372.	(LBF)
CALCULATED SPECIFIC IMPULSE	-1181.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-1006.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.1431	
MEASURED THRUST COEFFICIENT	-.1218	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4772.	(LBF)
NET THRUST	-408.	(LBF)
SPECIFIC IMPULSE	-1102.	(LBF-SEC/LBM)
THRUST COEFFICIENT	-.1335	

MOMENTUM AND FORCES

INLET-FRICTION DRAG	125.3	(LBF)
INLET MOMENTUM CHANGE	******	(LBF)
COMBUSTOR FRICTION DRAG	246.7	(LBF)
COMBUSTOR STRUT DRAG	-6.45	(LBF)
COMBUSTOR MOMENTUM CHANGE	50.	(LBF)
NOZZLE FRICTION DRAG	27.38	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	566.	(LBF)
NOZZLE PRESSURE INTEGRAL	593.	(LBF)
EXTERNAL FRICTION DRAG	43.49	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1264.	(LBF)
TOTAL EXTERNAL DRAG	-1308.	(LBF)
TOTAL STRUT DRAG	-6.45	(LBF)
CAVITY FORCE	-1251.	(LBF)
CALCULATED LOAD CELL FORCE	-2996.	(LBF)
MEASURED LOAD CELL FORCE	-2927.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE =121.3.

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3827	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.267	(IN)
NOZZLE SHROUD TRAILING EDGE	73.607	(IN)
NOZZLE PLUG TRAILING EDGE	87.359	(IN)
STRUT LEADING EDGE	56.523	(IN)
STRUT TRAILING EDGE	65.123	(IN)
COMBUSTOR EXIT	65.123	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.8121	
ADDITIVE DRAG COEFFICIENT	0.0162	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2747	
DELTA PT2	0.1486	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4024	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2799	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8881	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9132	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9207	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8937	
ENTHALPY AT PO - SUPERSONIC	-11.00	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	1.93	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0113
EQUIVALENCE RATIO	0.378
COMBUSTOR EFFICIENCY	0.009
TOTAL PRESSURE RATIO	0.2613
COMBUSTOR EFFECTIVENESS	0.2391

INJECTOR DISCHARGE COEFFICIENTS 0.7204,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9733
NOZZLE COEFFICIENT - CT	0.9126
PROCESS EFFICIENCY	0.8466
KINETIC ENERGY EFFICIENCY	0.9410

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.368	
1C	44.300	
2A	48.843	0
2C	46.250	
3A	54.133	
3B	56.318	
4	44.868	

Reading 96

t = 150.64 sec.

READING = 0096 BLOCK = 52 TIME = 150.640 MACH 5.2 PT = 418.249 TT = 2221.3

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOPTM	O	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	418.249	2221	441.8(571)	1.3187	28.859	2246											
0.000	0.588	374	-39.3(90)	1.3983	28.858	949	5.170	4907	1.780	0.14408	29.957	0.8116	4691	10.987	156.6		
SPIKE TIP NS		2	0 7														
0.600	22.387	2221	441.8(571)	1.3188	28.859	2247											
0.600	20.492	2174	428.4(557)	1.3204	28.859	2224	0.368	819	1.981	0.14408	29.957	0.8118	5023	1.833	167.7		
WIND TUNNEL		3	0 0														
0.000	418.249	2221	441.8(571)	1.3187	28.859	2246											
0.000	0.665	387	-36.1(93)	1.3985	28.858	966	5.063	4890	1.780	0.15680	32.602	0.8118	5094	11.917	156.2		
SPIKE TIP NS		4	0 0														
0.600	22.387	2221	441.8(571)	1.3188	28.859	2247											
0.600	20.091	2164	425.5(554)	1.3208	28.859	2219	0.408	904	1.981	0.15680	32.602	0.8118	5094	2.204	156.2		
INLET THROAT		5	0 4														
40.400	170.079	2164	425.6(555)	1.3207	28.859	2219											
40.400	20.708	1267	181.6(311)	1.3627	28.858	1725	2.026	3494	1.834	1.06631	32.602	0.1097	4122	63.015	126.4		
INLET UPNRBK		6	0 3														
40.400	170.079	2164	425.6(555)	1.3207	28.859	2219											
40.400	20.315	1261	179.9(309)	1.3631	28.858	1721	2.038	3506	1.834	1.05498	32.602	0.1207	4181	57.482	128.2		
INLET DNNRBK		7	0 4														
40.400	116.907	2164	425.6(555)	1.3207	28.859	2219											
40.400	95.244	2059	395.8(525)	1.3245	28.859	2167	0.563	1221	1.860	1.05498	32.602	0.1207	4181	20.017	128.2		
COMBUSTOR	0	8	1 5														
40.410	170.813	2164	425.5(555)	1.3207	28.859	2219											
40.410	24.080	1317	194.6(324)	1.3596	28.858	1757	1.935	3399	1.834	1.16033	32.602	0.1097	4121	61.299	126.4		
COMBUSTOR	0	9	2 5														
41.382	141.641	2156	423.2(552)	1.3210	28.859	2215											
41.382	28.590	1442	227.2(356)	1.3521	28.858	1833	1.709	3131	1.846	1.15978	32.602	0.1098	3977	56.441	122.0		
COMBUSTOR	0	10	3 5														
41.447	140.008	2155	423.0(552)	1.3211	28.859	2215											
41.447	28.991	1451	229.6(359)	1.3516	28.858	1838											
							1.693	3111	1.846	1.16086	32.602	0.1096	3966	56.118	121.7		
COMBUSTOR	0	11	4 5														
41.500	138.542	2158	422.9(552)	1.3211	28.859	2214											
41.500	29.296	1458	231.6(361)	1.3512	28.858	1842	1.679	3093	1.847	1.16049	32.602	0.1097	3958	55.787	121.4		
COMBUSTOR	0	12	5 6														
42.460	123.613	2144	420.0(549)	1.3214	28.859	2210											
42.460	32.738	1538	252.8(382)	1.3467	28.858	1889	1.531	2892	1.854	1.14958	32.602	0.1107	3859	51.668	118.4		
COMBUSTOR	0	13	6 5														
44.167	111.115	2126	414.8(544)	1.3221	28.859	2200											
44.167	34.464	1587	266.0(395)	1.3441	28.858	1917	1.423	2728	1.859	1.10639	32.602	0.1150	3780	46.910	115.9		
COMBUSTOR	0	14	7 5														
44.310	110.385	2124	414.3(543)	1.3221	28.859	2200											
44.310	34.811	1593	267.5(397)	1.3438	28.858	1920	1.412	2711	1.859	1.10639	32.602	0.1150	3772	46.606	115.7		
COMBUSTOR	0	15	8 5														
44.800	107.232	2119	412.9(542)	1.3223	28.859	2197											
44.800	36.131	1616	273.7(403)	1.3426	28.858	1933	1.365	2639	1.860	1.10197	32.602	0.1155	3743	45.193	114.8		
COMBUSTOR	0	16	9 5														
44.882	106.685	2119	412.7(542)	1.3223	28.859	2197											
44.882	36.327	1620	274.7(404)	1.3424	28.858	1935	1.358	2627	1.860	1.10055	32.602	0.1157	3738	44.935	114.7		
COMBUSTOR	0	17	10 5														
46.260	99.933	2106	409.1(538)	1.3228	28.859	2191											
46.260	34.487	1615	273.5(403)	1.3427	28.858	1933	1.348	2605	1.863	1.03892	32.602	0.1225	3722	42.059	114.2		
COMBUSTOR	0	18	11 5														
47.310	97.939	2097	406.6(536)	1.3231	28.859	2186											
47.310	29.085	1547	255.2(384)	1.3462	28.858	1894	1.453	2752	1.863	0.96621	32.602	0.1317	3770	41.320	115.6		

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	MW	A/AC	MOMTH	O	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 5														
47.407	97.934	2096	406.3(535)	1.3231	28.859	2186											
47.407	28.550	1539	253.1(382)	1.3467	28.858	1890	1.466	2769	1.863	0.95933	32.602	0.1327	3776	41.283	115.6		
COMBUSTOR	0	20	13 5														
48.110	97.909	2090	404.7(534)	1.3233	28.859	2183											
48.110	24.423	1474	235.7(365)	1.3503	28.858	1852	1.570	2907	1.862	0.89976	32.602	0.1415	3831	40.653	117.5		
COMBUSTOR	0	21	14 21														
48.847	69.069	2119	426.3(616)	1.3263	25.289	2351											
48.847	19.782	1545	247.5(437)	1.3501	25.289	2025	1.477	2991	2.106	0.82931	32.966	0.1552	3851	36.545	116.6	0.38	0.07
COMBUSTOR	0	22	15 21														
48.857	75.007	2003	426.3(580)	1.3318	25.179	2295											
48.857	19.755	1423	247.4(401)	1.3577	25.178	1953	1.532	2992	2.084	0.82823	32.966	0.1554	3852	38.507	116.6	0.38	0.01
COMBUSTOR	0	23	16 21														
49.387	74.806	1982	425.2(574)	1.3328	25.162	2284											
49.387	18.312	1380	240.0(389)	1.3602	25.162	1926	1.580	3043	2.081	0.77460	32.966	0.1662	3898	36.636	118.2	0.38	0.00
COMBUSTOR	0	24	17 5														
50.797	64.960	2292	421.7(669)	1.3181	25.469	2428											
50.797	31.969	1926	305.3(552)	1.3314	25.469	2238	1.079	2414	2.130	0.66017	32.966	0.1950	4069	24.763	123.4	0.38	0.18
COMBUSTOR	0	25	18 5														
52.897	58.259	2690	412.9(705)	1.2996	25.772	2597											
52.897	36.000	2404	318.4(702)	1.3093	25.772	2464	0.882	2174	2.184	0.54293	33.079	0.2379	4428	18.342	133.9	0.39	0.40
COMBUSTOR	0	26	19 4														
53.397	57.480	2766	410.7(819)	1.2960	25.858	2626											
53.397	37.500	2507	324.2(734)	1.3048	25.858	2508	0.830	2080	2.191	0.52075	33.079	0.2480	4521	16.834	136.7	0.39	0.45
COMBUSTOR	0	27	20 5														
54.137	55.476	2742	415.4(854)	1.2985	24.507	2688											
54.137	35.760	2476	322.6(762)	1.3075	24.507	2563	0.841	2155	2.286	0.49366	33.242	0.2629	4635	16.533	139.4	0.56	0.34
COMBUSTOR	0	28	21 2														
54.147	55.453	2744	415.4(855)	1.2984	24.510	2688											
54.147	35.737	2478	322.4(763)	1.3074	24.510	2563	0.841	2157	2.286	0.49329	33.242	0.2631	4636	16.532	139.5	0.56	0.34
COMBUSTOR	0	29	22 4														
54.907	53.788	2936	411.9(918)	1.2894	24.710	2760											
54.907	33.950	2644	308.8(817)	1.2993	24.710	2629	0.864	2272	2.303	0.46648	33.242	0.2782	4767	16.470	143.4	0.56	0.42
COMBUSTOR	0	30	23 4														
55.760	52.770	3064	408.0(961)	1.2833	24.852	2805											
55.760	35.308	2801	313.8(869)	1.2922	24.853	2691	0.807	2171	2.314	0.44006	33.242	0.2949	4910	14.845	147.7	0.56	0.48
COMBUSTOR	0	31	24 4														
56.322	49.114	3514	407.9(1167)	1.2618	24.116	3024											
56.322	36.201	3297	322.3(1080)	1.2699	24.120	2938	0.704	2070	2.442	0.35471	33.405	0.3677	5558	11.409	166.4	0.72	0.56
COMBUSTOR	0	32	25 2														
56.332	49.116	3516	407.9(1168)	1.2617	24.117	3024											
56.332	36.217	3299	322.4(1080)	1.2698	24.121	2938	0.704	2069	2.442	0.35452	33.405	0.3679	5560	11.398	166.5	0.72	0.56
COMBUSTOR	0	33	26 4														
56.387	48.895	3578	407.6(1100)	1.2583	24.182	3042											
56.387	35.602	3350	317.4(1104)	1.2670	24.188	2954	0.720	2125	2.446	0.35352	33.405	0.3689	5570	11.676	166.8	0.72	0.58
COMBUSTOR	0	34	27 3														
56.527	48.814	3594	407.0(1196)	1.2574	24.201	3047											
56.527	35.714	3369	317.7(1111)	1.2660	24.207	2960	0.714	2114	2.447	0.35098	33.405	0.3716	5594	11.529	167.4	0.72	0.59
COMBUSTOR	0	35	28 5														
56.607	49.604	3574	406.6(1189)	1.2585	24.181	3041											
56.607	36.654	3357	320.5(1107)	1.2668	24.186	2956	0.702	2076	2.444	0.35485	33.405	0.3675	5606	11.450	167.8	0.72	0.58
COMBUSTOR	0	36	29 3														
56.887	49.923	3610	405.4(1202)	1.2565	24.223	3051											
56.887	37.100	3396	320.1(1121)	1.2647	24.228	2969	0.696	2066	2.446	0.35387	33.405	0.3686	5647	11.362	169.1	0.72	0.60
COMBUSTOR	0	37	30 3														
57.113	50.089	3652	404.3(1216)	1.2542	24.270	3063											
57.113	37.255	3437	318.5(1135)	1.2625	24.276	2981	0.695	2073	2.447	0.35301	33.405	0.3695	5678	11.374	170.0	0.72	0.61

READING = 0096 BLOCK = 52 TIME = 150.640 MACH 5.2 PT = 418.249 TT = 2221.3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
57.837	50.228	3727	401.2(1243)	1.2497	24.360	3083											
57.837	37.750	3519	316.8(1164)	1.2581	24.367	3006	0.684	2055	2.451	0.34755	33.405	0.3753	5762	11.097	172.5	0.72	0.64
COMBUSTOR	0	39	32 4														
58.857	50.346	3851	396.9(1288)	1.2422	24.506	3115											
58.857	37.612	3637	308.4(1206)	1.2512	24.516	3038	0.693	2105	2.455	0.34532	33.405	0.3777	5823	11.294	174.3	0.72	0.69
COMBUSTOR	0	40	33 4														
60.867	50.619	4085	388.9(1371)	1.2270	24.789	3170											
60.867	34.762	3808	270.1(1266)	1.2393	24.812	3075	0.793	2438	2.463	0.35734	33.405	0.3650	5781	13.539	173.1	0.72	0.79
COMBUSTOR	0	41	34 4														
62.287	51.027	4166	383.3(1400)	1.2213	24.897	3187											
62.287	32.437	3833	238.8(1273)	1.2364	24.929	3075	0.875	2689	2.464	0.36703	33.405	0.3553	5744	15.336	171.9	0.72	0.83
SONIC THROAT		42	35 202														
62.287	54.408	4562	383.3(1545)	1.1917	25.361	3265											
62.287	32.437	4200	206.1(1404)	1.2089	25.449	3150	0.945	2978	2.467	0.36703	33.405	0.3553	6044	16.984	180.9	0.72	1.00
COMBUSTOR REGEN		43	36 6														
62.287	51.027	4269	431.8(1440)	1.2152	24.879	3220											
62.287	29.527	3868	254.2(1286)	1.2340	24.925	3086	0.966	2981	2.476	0.36703	33.405	0.3553	5783	17.003	173.1	0.72	0.83
NOZZLE AE		44	37 4														
87.363	51.027	4166	383.3(1392)	1.2213	24.897	3187											
87.363	1.174	1864	-492.7(563)	1.3132	24.959	2208	2.998	6621	2.464	0.06733	33.405	1.9371	7456	6.927	223.2	0.72	0.83
NOZZLE PO		45	38 4														
87.363	51.027	4166	383.3(1392)	1.2213	24.897	3187											
87.363	0.665	1625	-571.5(484)	1.3251	24.959	2071	3.338	6912	2.464	0.04568	33.405	2.8550	7663	4.907	229.4	0.72	0.83
NOZZLE AE REGEN		46	39 4														
87.363	51.027	4269	431.8(1440)	1.2152	24.879	3220											
87.363	1.208	1942	-466.9(589)	1.3097	24.959	2251	2.978	6704	2.476	0.06733	33.405	1.9371	7560	7.015	226.3	0.72	0.83
NOZZLE PO REGEN		47	40 4														
87.363	51.027	4269	431.8(1440)	1.2152	24.879	3220											
87.363	0.665	1683	-552.5(503)	1.3220	24.959	2105	3.334	7018	2.476	0.04477	33.405	2.9129	7783	4.883	233.0	0.72	0.83
FICTIVE COMBUSTR		69	62 0														
62.287	170.079	4609	383.3(1562)	1.2033	25.413	3294											
62.287	0.665	1419	-830.3(412)	1.3315	25.540	1918	4.063	7793	2.377	0.06034	33.405	2.1616	8459	7.307	253.2	0.72	1.00
FICTIVE NOZZLE		70	63 0														
87.363	26.390	4080	349.7(1368)	1.2205	24.896	3154											
87.363	1.614	2288	-348.0(707)	1.2958	24.959	2430	2.432	5909	2.509	0.06733	33.405	1.9371	6936	6.183	207.6	0.72	0.83

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.400E 00	0.000	-5.471E-01	0.000	0.000	0.000	2.470E-02	2.106E 00	3.347E-03	0.000	0.000
1.836E 01	1.400E 00	0.000	-4.658E 01	0.000	0.000	0.000	1.634E 02	2.106E 00	3.347E-03	0.000	0.000
3.070E 01	3.200E 00	0.000	-2.330E 02	0.000	0.000	0.000	5.053E 02	4.813E 00	7.651E-03	0.000	0.000
3.508E 01	4.250E 00	0.000	-4.745E 02	0.000	0.000	0.000	6.804E 02	6.393E 00	1.016E-02	0.000	0.000
3.526E 01	4.778E 00	6.061E 00	-5.500E 02	0.000	0.000	0.000	6.886E 02	7.187E 00	1.142E-02	9.117E 00	1.449E-02
3.527E 01	4.796E 00	6.044E 00	-5.502E 02	0.000	0.000	0.000	6.888E 02	7.213E 00	1.147E-02	9.091E 00	1.445E-02
3.555E 01	5.595E 00	5.260E 00	-5.600E 02	0.000	0.000	0.000	7.169E 02	8.416E 00	1.338E-02	7.912E 00	1.258E-02
3.594E 01	5.565E 00	4.175E 00	-5.826E 02	-2.765E 02	-2.765E 02	0.000	7.562E 02	8.370E 00	1.330E-02	6.280E 00	9.982E-03
3.606E 01	5.555E 00	5.015E 00	-5.904E 02	-2.805E 02	-2.805E 02	0.000	7.688E 02	8.356E 00	1.328E-02	7.543E 00	1.199E-02
3.648E 01	4.897E 00	7.873E 00	-6.073E 02	-2.873E 02	-2.873E 02	0.000	8.123E 02	7.367E 00	1.171E-02	1.184E 01	1.882E-02
3.701E 01	5.737E 00	1.148E 01	-6.250E 02	-3.286E 02	-2.964E 02	-3.219E 01	8.684E 02	8.630E 00	1.372E-02	1.727E 01	2.745E-02
3.740E 01	7.074E 00	1.411E 01	-6.430E 02	-3.492E 02	-3.033E 02	-4.593E 01	9.098E 02	1.064E 01	1.691E-02	2.123E 01	3.374E-02
3.803E 01	9.262E 00	1.606E 01	-6.931E 02	-3.831E 02	-3.152E 02	-6.791E 01	9.791E 02	1.393E 01	2.215E-02	2.416E 01	3.840E-02
3.842E 01	1.442E 01	1.725E 01	-7.331E 02	-4.045E 02	-3.232E 02	-8.124E 01	1.022E 03	2.169E 01	3.448E-02	2.595E 01	4.124E-02
3.875E 01	1.887E 01	1.874E 01	-7.767E 02	-4.237E 02	-3.310E 02	-9.269E 01	1.060E 03	2.838E 01	4.511E-02	2.819E 01	4.480E-02
3.880E 01	2.069E 01	1.935E 01	-7.932E 02	-4.317E 02	-3.344E 02	-9.737E 01	1.076E 03	3.112E 01	4.947E-02	2.911E 01	4.626E-02
3.901E 01	2.234E 01	2.050E 01	-8.075E 02	-4.391E 02	-3.376E 02	-1.016E 02	1.090E 03	3.360E 01	5.341E-02	3.083E 01	4.900E-02
3.940E 01	2.119E 01	2.409E 01	-8.375E 02	-4.631E 02	-3.484E 02	-1.148E 02	1.134E 03	3.188E 01	5.067E-02	3.623E 01	5.759E-02
3.950E 01	2.089E 01	2.013E 01	-8.424E 02	-4.697E 02	-3.514E 02	-1.183E 02	1.146E 03	3.142E 01	4.994E-02	3.029E 01	4.814E-02
3.989E 01	1.983E 01	5.350E 00	-8.713E 02	-4.951E 02	-3.639E 02	-1.312E 02	1.191E 03	2.983E 01	4.742E-02	6.047E 00	1.279E-02
4.000E 01	1.952E 01	5.334E 00	-8.836E 02	-5.027E 02	-3.678E 02	-1.349E 02	1.204E 03	2.936E 01	4.668E-02	8.023E 00	1.275E-02
4.040E 01	2.340E 01	5.276E 00	-9.275E 02	-5.303E 02	-3.824E 02	-1.479E 02	1.251E 03	3.519E 01	5.594E-02	7.937E 00	1.262E-02
4.041E 01	2.349E 01	5.275E 00	-9.286E 02	-5.310E 02	-3.828E 02	-1.482E 02	1.252E 03	3.534E 01	5.617E-02	7.935E 00	1.261E-02
4.138E 01	3.290E 01	5.136E 00	-1.057E 03	-6.090E 02	-4.231E 02	-1.859E 02	1.367E 03	4.949E 01	7.867E-02	7.725E 00	1.228E-02
4.145E 01	3.353E 01	5.127E 00	-1.066E 03	-6.149E 02	-4.261E 02	-1.888E 02	1.375E 03	5.044E 01	8.018E-02	7.711E 00	1.226E-02
4.150E 01	3.405E 01	5.382E 00	-1.074E 03	-6.196E 02	-4.285E 02	-1.913E 02	1.382E 03	5.122E 01	8.141E-02	8.096E 00	1.287E-02
4.246E 01	1.972E 01	9.982E 00	-1.157E 03	-7.122E 02	-4.751E 02	-2.370E 02	1.496E 03	2.967E 01	4.716E-02	1.501E 01	2.387E-02
4.417E 01	2.913E 01	1.816E 01	-1.210E 03	-8.830E 02	-5.583E 02	-3.247E 02	1.703E 03	4.382E 01	6.966E-02	2.731E 01	4.342E-02
4.431E 01	2.992E 01	1.840E 01	-1.216E 03	-8.972E 02	-5.650E 02	-3.322E 02	1.720E 03	4.501E 01	7.155E-02	2.768E 01	4.400E-02
4.480E 01	3.262E 01	1.924E 01	-1.238E 03	-9.434E 02	-5.875E 02	-3.559E 02	1.780E 03	4.907E 01	7.800E-02	2.894E 01	4.601E-02
4.488E 01	3.210E 01	1.938E 01	-1.242E 03	-9.507E 02	-5.912E 02	-3.595E 02	1.790E 03	4.828E 01	7.674E-02	2.915E 01	4.634E-02
4.626E 01	2.318E 01	2.174E 01	-1.239E 03	-1.067E 03	-6.537E 02	-4.132E 02	1.959E 03	3.487E 01	5.542E-02	3.270E 01	5.198E-02
4.731E 01	1.639E 01	2.353E 01	-1.177E 03	-1.151E 03	-7.015E 02	-4.491E 02	2.090E 03	2.465E 01	3.918E-02	3.540E 01	5.627E-02
4.741E 01	1.570E 01	2.370E 01	-1.169E 03	-1.158E 03	-7.058E 02	-4.524E 02	2.102E 03	2.362E 01	3.755E-02	3.565E 01	5.666E-02
4.811E 01	1.078E 01	2.179E 01	-1.105E 03	-1.213E 03	-7.379E 02	-4.747E 02	2.189E 03	1.613E 01	2.564E-02	3.277E 01	5.209E-02
4.885E 01	1.978E 01	1.978E 01	-1.029E 03	-1.266E 03	-7.715E 02	-4.947E 02	2.281E 03	2.976E 01	4.730E-02	2.976E 01	4.730E-02
4.886E 01	1.975E 01	1.975E 01	-1.028E 03	-1.267E 03	-7.720E 02	-4.949E 02	2.283E 03	2.971E 01	4.723E-02	2.971E 01	4.723E-02
4.930E 01	1.831E 01	1.831E 01	-9.757E 02	-1.303E 03	-7.962E 02	-5.069E 02	2.349E 03	2.755E 01	4.378E-02	2.755E 01	4.378E-02
5.080E 01	3.197E 01	3.197E 01	-7.899E 02	-1.416E 03	-8.609E 02	-5.546E 02	2.527E 03	4.809E 01	7.643E-02	4.809E 01	7.643E-02
5.290E 01	3.600E 01	3.600E 01	-4.157E 02	-1.661E 03	-9.578E 02	-7.034E 02	2.793E 03	5.415E 01	8.607E-02	5.415E 01	8.607E-02
5.340E 01	3.750E 01	3.750E 01	-3.201E 02	-1.732E 03	-9.810E 02	-7.514E 02	2.857E 03	5.641E 01	8.966E-02	5.641E 01	8.966E-02
5.414E 01	3.576E 01	3.576E 01	-1.803E 02	-1.840E 03	-1.015E 03	-8.249E 02	2.951E 03	5.379E 01	8.550E-02	5.379E 01	8.550E-02
5.415E 01	3.574E 01	3.574E 01	-1.784E 02	-1.842E 03	-1.016E 03	-8.259E 02	2.953E 03	5.375E 01	8.544E-02	5.375E 01	8.544E-02
5.491E 01	3.395E 01	3.395E 01	-4.338E 01	-1.956E 03	-1.051E 03	-9.048E 02	3.050E 03	5.107E 01	8.117E-02	5.107E 01	8.117E-02
5.576E 01	3.531E 01	3.531E 01	1.049E 02	-2.088E 03	-1.091E 03	-9.975E 02	3.160E 03	5.311E 01	8.442E-02	5.311E 01	8.442E-02
5.632E 01	3.620E 01	3.620E 01	7.551E 02	-2.175E 03	-1.114E 03	-1.061E 03	3.208E 03	5.445E 01	8.655E-02	5.445E 01	8.655E-02
5.633E 01	3.622E 01	3.622E 01	7.575E 02	-2.177E 03	-1.115E 03	-1.062E 03	3.209E 03	5.448E 01	8.659E-02	5.448E 01	8.659E-02
5.639E 01	3.490E 01	3.630E 01	7.678E 02	-2.185E 03	-1.117E 03	-1.068E 03	3.216E 03	5.250E 01	8.344E-02	5.461E 01	8.680E-02
5.653E 01	3.490E 01	3.653E 01	7.915E 02	-2.207E 03	-1.122E 03	-1.085E 03	3.234E 03	5.250E 01	8.344E-02	5.494E 01	8.733E-02
5.661E 01	3.665E 01	3.665E 01	8.062E 02	-2.219E 03	-1.125E 03	-1.094E 03	3.244E 03	5.513E 01	8.764E-02	5.513E 01	8.764E-02
5.689E 01	3.710E 01	3.710E 01	8.544E 02	-2.261E 03	-1.135E 03	-1.125E 03	3.280E 03	5.581E 01	8.870E-02	5.581E 01	8.870E-02
5.711E 01	3.725E 01	3.725E 01	8.905E 02	-2.294E 03	-1.144E 03	-1.151E 03	3.309E 03	5.604E 01	8.907E-02	5.604E 01	8.907E-02
5.784E 01	3.775E 01	3.775E 01	9.922E 02	-2.401E 03	-1.170E 03	-1.231E 03	3.402E 03	5.678E 01	9.026E-02	5.678E 01	9.026E-02
5.886E 01	3.761E 01	3.761E 01	1.079E 03	-2.544E 03	-1.208E 03	-1.336E 03	3.532E 03	5.658E 01	8.993E-02	5.658E 01	8.993E-02
6.087E 01	3.476E 01	3.476E 01	1.088E 03	-2.813E 03	-1.283E 03	-1.530E 03	3.790E 03	5.229E 01	8.311E-02	5.229E 01	8.311E-02
6.229E 01	3.244E 01	3.244E 01	1.088E 03	-2.999E 03	-1.343E 03	-1.657E 03	3.972E 03	4.879E 01	7.756E-02	4.879E 01	7.756E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.475E 01	2.449E 01	2.449E 01	1.088E 03	-3.339E 03	-1.467E 03	-1.872E 03	4.289E 03	3.683E 01	5.855E-02	3.683E 01	5.855E-02
6.513E 01	2.272E 01	2.327E 01	1.088E 03	-3.394E 03	-1.489E 03	-1.905E 03	4.337E 03	3.418E 01	5.433E-02	3.501E 01	5.565E-02
6.517E 01	2.272E 01	2.315E 01	1.088E 03	-3.399E 03	-1.491E 03	-1.908E 03	4.342E 03	3.418E 01	5.433E-02	3.481E 01	5.534E-02
6.537E 01	2.141E 01	2.250E 01	1.088E 03	-3.427E 03	-1.503E 03	-1.925E 03	4.368E 03	3.221E 01	5.119E-02	3.384E 01	5.380E-02
6.703E 01	1.051E 01	4.100E 00	1.247E 03	-3.617E 03	-1.582E 03	-2.034E 03	4.583E 03	1.581E 01	2.513E-02	6.167E 00	9.803E-03
6.770E 01	8.064E 00	9.360E 00	1.410E 03	-3.674E 03	-1.607E 03	-2.067E 03	4.665E 03	1.213E 01	1.928E-02	1.408E 01	2.238E-02
6.847E 01	5.250E 00	7.461E 00	1.616E 03	-3.734E 03	-1.631E 03	-2.103E 03	4.760E 03	7.897E 00	1.255E-02	1.122E 01	1.784E-02
6.919E 01	4.365E 00	5.685E 00	1.762E 03	-3.787E 03	-1.649E 03	-2.138E 03	4.848E 03	6.566E 00	1.044E-02	8.551E 00	1.359E-02
6.980E 01	3.615E 00	3.830E 00	1.857E 03	-3.829E 03	-1.663E 03	-2.166E 03	4.922E 03	5.438E 00	8.643E-03	5.760E 00	9.156E-03
7.075E 01	2.734E 00	9.400E-01	1.948E 03	-3.888E 03	-1.681E 03	-2.207E 03	5.036E 03	4.112E 00	6.536E-03	1.414E 00	2.247E-03
7.118E 01	2.335E 00	1.277E 00	1.976E 03	-3.912E 03	-1.688E 03	-2.224E 03	5.088E 03	3.512E 00	5.583E-03	1.921E 00	3.053E-03
7.271E 01	1.488E 00	2.475E 00	2.067E 03	-3.977E 03	-1.710E 03	-2.267E 03	5.273E 03	2.238E 00	3.558E-03	3.723E 00	5.918E-03
7.286E 01	1.405E 00	2.125E 00	2.075E 03	-3.982E 03	-1.711E 03	-2.270E 03	5.290E 03	2.113E 00	3.359E-03	3.196E 00	5.081E-03
7.361E 01	1.740E 00	3.750E-01	2.121E 03	-4.009E 03	-1.720E 03	-2.289E 03	5.374E 03	2.618E 00	4.161E-03	5.641E-01	8.966E-04
7.361E 01	1.742E 00	3.656E-01	2.122E 03	-4.009E 03	-1.720E 03	-2.289E 03	5.375E 03	2.620E 00	4.165E-03	5.500E-01	8.742E-04
7.494E 01	2.335E 00	0.000	2.165E 03	-4.061E 03	-1.732E 03	-2.329E 03	5.426E 03	3.512E 00	5.583E-03	0.000	0.000
7.779E 01	2.145E 00	0.000	2.255E 03	-4.079E 03	-1.750E 03	-2.329E 03	5.525E 03	3.226E 00	5.129E-03	0.000	0.000
8.169E 01	1.450E 00	0.000	2.331E 03	-4.093E 03	-1.764E 03	-2.329E 03	5.630E 03	2.181E 00	3.467E-03	0.000	0.000
8.450E 01	1.505E 00	0.000	2.364E 03	-4.102E 03	-1.774E 03	-2.329E 03	5.684E 03	2.264E 00	3.598E-03	0.000	0.000
8.736E 01	2.095E 00	0.000	2.408E 03	-4.119E 03	-1.790E 03	-2.329E 03	5.707E 03	3.151E 00	5.009E-03	0.000	0.000
8.736E 01	2.096E 00	0.000	2.408E 03	-4.119E 03	-1.790E 03	-2.329E 03	5.707E 03	3.153E 00	5.012E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.252E 02	1.252E 02	2.287E-03	4.995E-02
4.041E 01	1.686E-01	1.253E 02	2.307E-03	5.513E-02
4.138E 01	1.603E 01	1.414E 02	2.432E-03	5.898E-02
4.145E 01	1.062E 00	1.424E 02	2.441E-03	5.931E-02
4.150E 01	8.751E-01	1.433E 02	2.449E-03	5.983E-02
4.246E 01	1.534E 01	1.587E 02	2.526E-03	6.140E-02
4.417E 01	2.600E 01	1.847E 02	2.582E-03	6.074E-02
4.431E 01	2.101E 00	1.868E 02	2.588E-03	6.093E-02
4.480E 01	7.142E 00	1.939E 02	2.616E-03	6.148E-02
4.488E 01	1.180E 00	1.951E 02	2.621E-03	6.153E-02
4.626E 01	1.935E 01	2.144E 02	2.632E-03	5.828E-02
4.731E 01	1.414E 01	2.286E 02	2.578E-03	5.272E-02
4.741E 01	1.284E 00	2.298E 02	2.572E-03	5.216E-02
4.811E 01	9.132E 00	2.390E 02	2.519E-03	4.756E-02
4.885E 01	1.038E 01	2.494E 02	3.170E-03	3.506E-02
4.886E 01	1.413E-01	2.495E 02	2.685E-03	4.179E-02
4.930E 01	6.551E 00	2.560E 02	2.561E-03	4.085E-02
5.080E 01	1.406E 01	2.701E 02	2.599E-03	5.119E-02
5.290E 01	1.537E 01	2.855E 02	2.757E-03	4.565E-02
5.340E 01	3.196E 00	2.887E 02	2.947E-03	4.162E-02
5.414E 01	4.761E 00	2.934E 02	3.089E-03	3.891E-02
5.415E 01	6.402E-02	2.935E 02	2.966E-03	4.103E-02
5.491E 01	4.725E 00	2.982E 02	2.915E-03	4.084E-02
5.576E 01	5.069E 00	3.033E 02	2.990E-03	3.883E-02
5.632E 01	1.933E 00	3.052E 02	3.074E-03	3.503E-02
5.633E 01	4.526E-02	3.053E 02	3.146E-03	3.392E-02
5.639E 01	2.552E-01	3.055E 02	3.133E-03	3.420E-02
5.653E 01	6.481E-01	3.062E 02	3.153E-03	3.381E-02
5.661E 01	3.805E-01	3.066E 02	3.319E-03	3.198E-02
5.689E 01	1.315E 00	3.079E 02	3.143E-03	3.418E-02
5.711E 01	1.031E 00	3.089E 02	3.147E-03	3.418E-02
5.784E 01	3.275E 00	3.122E 02	3.147E-03	3.401E-02
5.886E 01	4.608E 00	3.168E 02	3.150E-03	3.422E-02
6.087E 01	1.002E 01	3.268E 02	3.109E-03	3.386E-02
6.229E 01	8.211E 00	3.350E 02	3.134E-03	3.576E-02
6.475E 01	1.718E 01	3.707E 02	3.142E-03	3.497E-02
6.513E 01	2.956E 00	3.736E 02	3.125E-03	3.429E-02
6.517E 01	3.180E-01	3.740E 02	3.124E-03	3.426E-02
6.537E 01	1.599E 00	3.756E 02	3.116E-03	3.376E-02
6.703E 01	1.224E 01	3.878E 02	2.919E-03	1.838E-02
6.770E 01	4.319E 00	3.921E 02	2.948E-03	2.062E-02
6.847E 01	4.865E 00	3.970E 02	2.898E-03	1.673E-02
6.919E 01	3.994E 00	4.010E 02	2.860E-03	1.421E-02
6.980E 01	2.944E 00	4.039E 02	2.814E-03	1.146E-02
7.075E 01	3.477E 00	4.074E 02	2.708E-03	6.769E-03
7.118E 01	1.258E 00	4.086E 02	2.705E-03	6.680E-03
7.271E 01	4.561E 00	4.132E 02	2.720E-03	7.164E-03
7.286E 01	4.238E-01	4.136E 02	2.702E-03	6.558E-03
7.361E 01	1.719E 00	4.153E 02	2.620E-03	4.406E-03
7.361E 01	2.760E-03	4.154E 02	2.619E-03	4.394E-03
7.494E 01	1.163E 00	4.165E 02	2.736E-03	8.080E-03
7.779E 01	2.678E 00	4.192E 02	2.712E-03	7.544E-03
8.169E 01	2.473E 00	4.217E 02	2.637E-03	5.556E-03
8.450E 01	1.139E 00	4.228E 02	2.631E-03	5.690E-03
8.736E 01	5.311E-01	4.233E 02	2.670E-03	7.298E-03
8.736E 01	0.000	4.233E 02	2.670E-03	7.301E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1761.	(LBF)
MEASURED THRUST	1991.	(LBF)
CALCULATED SPECIFIC IMPULSE	2493.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2819.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5769	
MEASURED THRUST COEFFICIENT	0.6523	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	7033.	(LBF)
NET THRUST	1857.	(LBF)
SPECIFIC IMPULSE	2629.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6085	

MOMENTUM AND FORCES

INLET-FRICTION DRAG	125.2	(LBF)
INLET MOMENTUM CHANGE	******	(LBF)
COMBUSTOR FRICTION DRAG	209.8	(LBF)
COMBUSTOR STRUT DRAG	117.29	(LBF)
COMBUSTOR MOMENTUM CHANGE	1621.	(LBF)
NOZZLE FRICTION DRAG	69.84	(LBF)
NOZZLE STRUT DRAG	57.83	(LBF)
NOZZLE MOMENTUM CHANGE	1192.	(LBF)
NOZZLE PRESSURE INTEGRAL	1320.	(LBF)
EXTERNAL FRICTION DRAG	42.78	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1264.	(LBF)
TOTAL EXTERNAL DRAG	-1307.	(LBF)
TOTAL STRUT DRAG	175.11	(LBF)
CAVITY FORCE	-1248.	(LBF)
CALCULATED LOAD CELL FORCE	-794.	(LBF)
MEASURED LOAD CELL FORCE	-563.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -125.4, -130.2,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3866	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.271	(IN)
NOZZLE SHROUD TRAILING EDGE	73.611	(IN)
NOZZLE PLUG TRAILING EDGE	87.363	(IN)
STRUT LEADING EDGE	56.527	(IN)
STRUT TRAILING EDGE	65.127	(IN)
COMBUSTOR EXIT	62.287	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.8118	
ADDITIVE DRAG COEFFICIENT	0.0162	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2743	
DELTA PT2	0.1474	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4066	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2795	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8912	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9145	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9164	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8887	
ENTHALPY AT PO - SUPERSONIC	-12.40	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	0.82	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0216
EQUIVALENCE RATIO	0.722
COMBUSTOR EFFICIENCY	0.826
TOTAL PRESSURE RATIO	0.3000
COMBUSTOR EFFECTIVENESS	0.8159
INJECTOR DISCHARGE COEFFICIENTS	0.7322, 0.7576, 0.6253,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9302
NOZZLE COEFFICIENT - CT	0.8621
PROCESS EFFICIENCY	0.8600
KINETIC ENERGY EFFICIENCY	0.8439

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.372	
1C	44.300	
2A	48.847	D
2C	46.250	
3A	54.137	E
3B	56.322	E
4	44.872	

Reading 96

t = 165.94 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL 1 0 4																	
0.000	418.499	2240	447.3(576)	1.3181	28.859	2256											
0.000	0.587	377	-38.5(91)	1.3984	28.858	954	5.170	4930	1.782	0.14316	29.766	0.8118	4683	10.969	157.3		
SPIKE TIP NS 2 0 8																	
0.600	22.437	2240	447.3(576)	1.3181	28.859	2256											
0.600	20.556	2193	433.9(563)	1.3197	28.859	2233	0.366	818	1.984	0.14316	29.766	0.8118	5031	1.820	169.0		
WIND TUNNEL 3 0 0																	
0.000	418.499	2240	447.3(576)	1.3181	28.859	2256											
0.000	0.667	392	-35.1(94)	1.3986	28.858	971	5.058	4913	1.782	0.15642	32.522	0.8118	5105	11.942	157.0		
SPIKE TIP NS 4 0 0																	
0.600	22.437	2240	447.3(576)	1.3181	28.859	2256											
0.600	20.138	2182	430.8(560)	1.3201	28.859	2228	0.407	908	1.984	0.15642	32.522	0.8118	5105	2.206	157.0		
INLET THROAT 5 0 4																	
40.400	172.231	2176	429.1(558)	1.3203	28.859	2225											
40.400	20.388	1266	181.2(310)	1.3628	28.858	1724	2.043	3522	1.835	1.05953	32.522	0.1097	4133	63.362	127.1		
INLET UPNRBK 6 0 3																	
40.400	172.231	2176	429.1(558)	1.3203	28.859	2225											
40.400	20.143	1262	180.1(309)	1.3630	28.858	1721	2.051	3530	1.835	1.05237	32.522	0.1207	4190	57.724	126.8		
INLET DNNRBK 7 0 4																	
40.400	117.270	2176	429.1(558)	1.3203	28.859	2225											
40.400	95.697	2071	399.4(528)	1.3240	28.859	2174	0.561	1220	1.861	1.05237	32.522	0.1207	4190	19.947	128.8		
COMBUSTOR 0 8 1 5																	
40.410	173.065	2176	429.1(558)	1.3203	28.859	2225											
40.410	23.848	1318	194.7(324)	1.3595	28.858	1757	1.949	3425	1.835	1.15746	32.522	0.1097	4132	61.602	127.0		
COMBUSTOR 0 9 2 5																	
41.382	143.326	2167	426.4(555)	1.3206	28.859	2220											
41.382	28.263	1441	227.0(356)	1.3522	28.858	1832	1.724	3158	1.846	1.15692	32.522	0.1098	3987	56.785	122.6		
COMBUSTOR 0 10 3 5																	
41.447	141.661	2166	426.2(555)	1.3207	28.859	2220											
41.447	28.654	1450	229.4(359)	1.3516	28.858	1838											
							1.708	3138	1.847	1.15799	32.522	0.1096	3976	56.466	122.3		
COMBUSTOR 0 11 4 5																	
41.500	140.164	2166	426.0(555)	1.3207	28.859	2220											
41.500	28.952	1457	231.4(361)	1.3512	28.858	1842	1.694	3120	1.848	1.15763	32.522	0.1097	3968	56.138	122.0		
COMBUSTOR 0 12 5 6																	
42.460	125.025	2154	422.8(552)	1.3211	28.859	2214											
42.460	32.248	1535	252.0(381)	1.3469	28.858	1887	1.549	2923	1.854	1.14675	32.522	0.1107	3869	52.091	119.0		
COMBUSTOR 0 13 6 5																	
44.167	112.540	2133	416.8(546)	1.3218	28.859	2204											
44.167	33.710	1579	263.7(393)	1.3445	28.858	1912	1.447	2768	1.859	1.10365	32.522	0.1150	3791	47.471	116.6		
COMBUSTOR 0 14 7 5																	
44.310	111.806	2131	416.3(545)	1.3219	28.859	2203											
44.310	34.023	1584	265.1(394)	1.3443	28.858	1915	1.436	2751	1.859	1.10366	32.522	0.1150	3783	47.184	116.3		
COMBUSTOR 0 15 8 5																	
44.800	108.630	2126	414.7(544)	1.3221	28.859	2200											
44.800	35.199	1605	270.8(400)	1.3432	28.858	1927	1.393	2684	1.860	1.09925	32.522	0.1155	3754	45.848	115.4		
COMBUSTOR 0 16 9 5																	
44.882	108.080	2125	414.5(544)	1.3221	28.859	2200											
44.882	35.370	1608	271.7(401)	1.3430	28.858	1929	1.386	2673	1.860	1.09783	32.522	0.1157	3750	45.604	115.3		
COMBUSTOR 0 17 10 5																	
46.260	101.416	2111	410.4(540)	1.3226	28.859	2193											
46.260	33.412	1600	269.4(399)	1.3435	28.858	1924	1.381	2657	1.863	1.03636	32.522	0.1225	3734	42.791	114.8		
COMBUSTOR 0 18 11 5																	
47.310	99.705	2100	407.5(537)	1.3230	28.859	2188											
47.310	28.201	1530	250.8(380)	1.3471	28.858	1885	1.466	2801	1.863	0.96382	32.522	0.1317	3782	41.950	116.3		

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HEADING = 0096  BLOCK #  69  TIME = 165,940  MACH  5.2  PI = 418.499  TI = 2240.3

               P      T      H            GAMMA  MOLWT SONV  MACH  VEL   S      W/A     W     A/AC    PUMIN   Q    IVAC  PHI  ETAC
COMBUSTOR      0   19   12   5
47.407     99.734 2099  407.3( 536) 1.3230 28.659 2187
47.407     27.684 1522  248.6( 378) 1.3476 28.658 1680 1.499 2818 1.862 0.95697 32.522 0.1327   3789 41.903 116.5
COMBUSTOR      0   20   13   5
48.110     99.795 2093  405.4( 534) 1.3232 28.659 2184
48.110     23.756 1458  231.5( 361) 1.3512 28.858 1842 1.601 2950 1.861 0.69754 32.522 0.1415   3842 41.142 118.1
COMBUSTOR      0   21   14   3
48.857     98.515 2086  403.6( 533) 1.3235 28.659 2181
48.857     19.668 1388  213.1( 342) 1.3553 28.858 1800 1.715 3088 1.862 0.81707 32.522 0.1554   3904 39.206 120.0
COMBUSTOR      0   22   15   3
49.387     97.433 2082  402.4( 531) 1.3236 28.659 2179
49.387     17.338 1344  201.5( 331) 1.3579 28.858 1773 1.789 3171 1.862 0.76415 32.522 0.1662   3943 37.659 121.3
COMBUSTOR      0   23   16   9
50.797    105.646 2070  399.1( 528) 1.3240 28.659 2173
50.797     11.922 1183  159.9( 289) 1.3680 28.658 1670
                                                      2.072 3460 1.855 0.65126 32.522 0.1950   4093 35.018 125.8
COMBUSTOR      0   24   17 202
52.897     73.192 2130  392.1( 547) 1.3211 28.778 2205
52.897     37.250 1804  300.5( 456) 1.3333 28.778 2038 1.050 2141 1.896 0.53563 32.634 0.2379   4441 17.816 136.1 0.02 1.00
COMBUSTOR      0   25   18 200
53.397     69.078 2125  390.8( 546) 1.3213 28.778 2203
53.397     41.567 1876  320.5( 476) 1.3304 28.778 2076 0.902 1873 1.899 0.51374 32.634 0.2480   4540 14.956 139.1 0.02 1.00
COMBUSTOR      0   26   19   5
54.137     57.045 2662  421.4( 800) 1.3016 25.271 2611
54.137     41.656 2473  357.9( 738) 1.3080 25.271 2523 0.706 1782 2.215 0.49082 33.051 0.2629   4636 13.593 140.3 0.44 0.34
COMBUSTOR      0   27   20   2
54.147     57.033 2664  421.3( 801) 1.3015 25.273 2612
54.147     41.658 2475  357.9( 738) 1.3079 25.273 2524 0.706 1782 2.215 0.49045 33.051 0.2631   4638 13.582 140.3 0.44 0.34
COMBUSTOR      0   28   21   4
54.907     56.108 2809  418.5( 848) 1.2947 25.429 2667
54.907     41.750 2625  355.8( 786) 1.3009 25.429 2564 0.686 1772 2.228 0.46379 33.051 0.2782   4795 12.772 145.1 0.44 0.42
COMBUSTOR      0   29   22   4
55.760     55.191 2976  414.6( 901) 1.2868 25.614 2727
55.760     41.772 2796  352.4( 840) 1.2929 25.615 2649 0.667 1767 2.242 0.43752 33.051 0.2949   4970 12.012 150.4 0.44 0.51
COMBUSTOR      0   30   23   5
56.322     52.054 3085  436.5(1058) 1.2852 22.649 2950
56.322     41.786 2937  378.5(1001) 1.2902 22.650 2884 0.591 1704 2.494 0.35538 33.467 0.3677   5708  9.412 170.6 0.87 0.35
COMBUSTOR      0   31   24   2
56.332     52.053 3088  436.5(1059) 1.2850 22.652 2951
56.332     41.786 2940  378.4(1002) 1.2900 22.653 2885 0.591 1705 2.494 0.35518 33.467 0.3679   5711  9.410 170.6 0.87 0.35
COMBUSTOR      0   32   25   4
56.387     51.596 3225  436.2(1110) 1.2784 22.782 3000
56.387     40.644 3061  370.8(1046) 1.2841 22.784 2929 0.618 1809 2.505 0.35419 33.467 0.3689   5722  9.958 171.0 0.87 0.39
COMBUSTOR      0   33   26   3
56.527     51.504 3248  435.5(1118) 1.2773 22.806 3007
56.527     40.645 3084  370.2(1055) 1.2830 22.807 2937 0.615 1808 2.507 0.35164 33.467 0.3716   5749  9.880 171.8 0.87 0.40
COMBUSTOR      0   34   27   7
56.607     52.426 3201  435.1(1101) 1.2796 22.762 2991
56.607     41.793 3045  373.4(1041) 1.2849 22.763 2923 0.601 1759 2.502 0.35551 33.467 0.3675   5764  9.716 172.2 0.87 0.39
COMBUSTOR      0   35   28   4
56.887     52.627 3285  433.8(1132) 1.2754 22.845 3020
56.887     41.800 3128  369.6(1069) 1.2810 22.847 2951 0.607 1792 2.508 0.35453 33.467 0.3686   5810  9.876 173.6 0.87 0.41
COMBUSTOR      0   36   29   4
57.113     52.697 3365  432.7(1161) 1.2714 22.925 3046
57.113     41.633 3199  365.7(1097) 1.2773 22.927 2977 0.615 1831 2.513 0.35367 33.467 0.3695   5845 10.066 174.6 0.87 0.44
COMBUSTOR      0   37   30   4
57.837     52.509 3550  429.2(1230) 1.2617 23.116 3104
57.837     41.100 3373  356.4(1160) 1.2683 23.119 3033 0.630 1910 2.524 0.34819 33.467 0.3753   5937 10.334 177.4 0.87 0.49
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READING = 0096  BLOCK =  69  TIME = 165.940  MACH  5.2  PI = 418.499  TI = 2240.3                                          PAGE  3

                  P      T       H              GAMMA   MOLWT  SONV   MACH   VEL    S      W/A       W      A/AC    MOMTM    O      IVAC  PHI  ETAC
COMBUSTOR         0   38    31    4
58.857    52.452 3740   424.6(1300) 1.2509 23.320 3158
58.857    40.425 3548   343.7(1225) 1.2566 23.327 3085 0.652 2012 2.535 0.34597 33.467 0.3777    6003 10.816 179.4 0.87 0.56
COMBUSTOR         0   39    32    4
60.867    52.374 4082   415.9(1428) 1.2293 23.702 3244
60.867    36.712 3818   298.3(1323) 1.2410 23.723 3151 0.770 2425 2.550 0.35601 33.467 0.3650    5955 13.495 177.9 0.87 0.67
COMBUSTOR         0   40    33    4
62.287    52.657 4189   409.9(1469) 1.2217 23.834 3267
62.287    34.106 3868   264.2(1340) 1.2364 23.865 3157 0.856 2701 2.553 0.36771 33.467 0.3553    5913 15.432 176.7 0.87 0.72
SONIC THROAT         41    34 205
62.287    60.097 4859   409.9(1724) 1.1682 24.583 3388
62.287    34.106 4496   196.5(1574) 1.1824 24.748 3268 1.000 3268 2.556 0.36771 33.467 0.3553    6504 18.676 194.3 0.87 1.00
COMBUSTOR  REGEN  42    35    4
62.287    52.657 4234   431.9(1487) 1.2190 23.826 3282
62.287    33.359 3897   277.2(1352) 1.2347 23.862 3166 0.879 2782 2.558 0.36771 33.467 0.3553    5930 15.897 177.2 0.87 0.72
NOZZLE  AE          43    36    4
87.363    52.657 4189   409.9(1465) 1.2217 23.834 3267
87.363     1.199 1867  -511.1( 588) 1.3146 23.896 2260 3.004 6789 2.553 0.06745 33.467 1.9371    7657  7.116 228.8 0.87 0.72
NOZZLE  PO          44    37    4
87.363    52.657 4189   409.9(1465) 1.2217 23.834 3267
87.363     0.667 1619  -595.9( 503) 1.3268 23.896 2114 3.356 7094 2.553 0.04523 33.467 2.8890    7874  4.986 235.3 0.87 0.72
NOZZLE  AE REGEN    45    38    4
87.363    52.657 4234   431.9(1487) 1.2190 23.826 3282
87.363     1.214 1900  -499.3( 600) 1.3131 23.896 2279 2.996 6826 2.558 0.06745 33.467 1.9371    7703  7.156 230.2 0.87 0.72
NOZZLE  PO REGEN    46    39    4
87.363    52.657 4234   431.9(1487) 1.2190 23.826 3282
87.363     0.667 1644  -587.4( 511) 1.3255 23.896 2129 3.354 7142 2.558 0.04483 33.467 2.9144    7927  4.976 236.9 0.87 0.72
FICTIVE COMBUSTR    68    61    0
62.287   172.231 4942   409.9(1756) 1.1797 24.676 3427
62.287     0.667 1629  -972.9( 493) 1.3155 24.962 2066 4.027 8318 2.471 0.05507 33.467 2.3726    9058  7.119 270.7 0.87 1.00
FICTIVE NOZZLE      69    62    0
87.363    29.294 4101   372.8(1433) 1.2216 23.835 3233
87.363     1.583 2230  -382.3( 716) 1.2994 23.896 2456 2.503 6147 2.593 0.06745 33.467 1.9371    7179  6.444 214.5 0.87 0.72
```

XABS	P-IB	P-OB	PRA	QUX	W-IB	W-OB	CAWALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PIO
6.981E-01	1.400E 00	0.000	-5.483E-01	0.000	0.000	0.000	2.470E-02	2.097E 00	3.345E-03	0.000	0.000
1.636E 01	1.400E 00	0.000	-4.658E 01	0.000	0.000	0.000	1.634E 02	2.097E 00	3.345E-03	0.000	0.000
3.070E 01	3.205E 00	0.000	-2.333E 02	0.000	0.000	0.000	5.053E 02	4.802E 00	7.656E-03	0.000	0.000
3.508E 01	4.252E 00	0.000	-4.749E 02	0.000	0.000	0.000	6.804E 02	6.371E 00	1.016E-02	0.000	0.000
3.526E 01	4.782E 00	6.064E 00	-5.505E 02	0.000	0.000	0.000	6.886E 02	7.164E 00	1.143E-02	9.085E 00	1.449E-02
3.527E 01	4.799E 00	6.048E 00	-5.507E 02	0.000	0.000	0.000	6.888E 02	7.190E 00	1.147E-02	9.060E 00	1.445E-02
3.555E 01	5.800E 00	5.294E 00	-5.604E 02	0.000	0.000	0.000	7.164E 02	8.390E 00	1.338E-02	7.931E 00	1.265E-02
3.594E 01	5.562E 00	4.250E 00	-5.826E 02	-3.032E 02	-3.032E 02	0.000	7.562E 02	8.333E 00	1.329E-02	6.367E 00	1.016E-02
3.606E 01	5.550E 00	5.087E 00	-5.906E 02	-3.054E 02	-3.054E 02	0.000	7.688E 02	8.315E 00	1.326E-02	7.621E 00	1.215E-02
3.648E 01	4.871E 00	7.934E 00	-6.071E 02	-3.126E 02	-3.126E 02	0.000	8.123E 02	7.298E 00	1.164E-02	1.189E 01	1.896E-02
3.701E 01	5.775E 00	1.153E 01	-6.246E 02	-3.609E 02	-3.227E 02	-3.818E 01	8.684E 02	8.652E 00	1.380E-02	1.727E 01	2.755E-02
3.740E 01	7.108E 00	1.415E 01	-6.427E 02	-3.847E 02	-3.302E 02	-5.449E 01	9.098E 02	1.065E 01	1.699E-02	2.120E 01	3.381E-02
3.803E 01	9.292E 00	1.607E 01	-6.931E 02	-4.238E 02	-3.432E 02	-8.057E 01	9.791E 02	1.392E 01	2.220E-02	2.408E 01	3.841E-02
3.842E 01	1.443E 01	1.725E 01	-7.333E 02	-4.483E 02	-3.519E 02	-9.640E 01	1.022E 03	2.163E 01	3.449E-02	2.584E 01	4.122E-02
3.875E 01	1.887E 01	1.874E 01	-7.769E 02	-4.703E 02	-3.603E 02	-1.100E 02	1.060E 03	2.827E 01	4.508E-02	2.806E 01	4.478E-02
3.889E 01	2.068E 01	1.935E 01	-7.934E 02	-4.795E 02	-3.640E 02	-1.155E 02	1.076E 03	3.099E 01	4.943E-02	2.899E 01	4.624E-02
3.901E 01	2.232E 01	2.048E 01	-8.077E 02	-4.880E 02	-3.675E 02	-1.206E 02	1.090E 03	3.345E 01	5.335E-02	3.069E 01	4.895E-02
3.940E 01	2.116E 01	2.404E 01	-8.377E 02	-5.153E 02	-3.791E 02	-1.362E 02	1.134E 03	3.170E 01	5.056E-02	3.601E 01	5.744E-02
3.950E 01	2.085E 01	2.010E 01	-8.425E 02	-5.228E 02	-3.825E 02	-1.404E 02	1.146E 03	3.124E 01	4.962E-02	3.011E 01	4.803E-02
3.989E 01	1.967E 01	5.375E 00	-8.714E 02	-5.516E 02	-3.959E 02	-1.557E 02	1.191E 03	2.977E 01	4.748E-02	8.053E 00	1.284E-02
4.000E 01	1.958E 01	5.372E 00	-8.838E 02	-5.603E 02	-4.002E 02	-1.601E 02	1.204E 03	2.934E 01	4.679E-02	8.049E 00	1.284E-02
4.040E 01	2.352E 01	5.364E 00	-9.278E 02	-5.914E 02	-4.159E 02	-1.755E 02	1.251E 03	3.524E 01	5.620E-02	8.036E 00	1.282E-02
4.041E 01	2.362E 01	5.363E 00	-9.288E 02	-5.922E 02	-4.163E 02	-1.759E 02	1.252E 03	3.538E 01	5.643E-02	8.035E 00	1.282E-02
4.138E 01	3.318E 01	5.342E 00	-1.058E 03	-6.803E 02	-4.597E 02	-2.206E 02	1.367E 03	4.972E 01	7.929E-02	8.003E 00	1.276E-02
4.145E 01	3.382E 01	5.341E 00	-1.067E 03	-6.870E 02	-4.629E 02	-2.241E 02	1.375E 03	5.068E 01	8.082E-02	8.001E 00	1.276E-02
4.150E 01	3.435E 01	5.592E 00	-1.075E 03	-6.925E 02	-4.655E 02	-2.270E 02	1.382E 03	5.146E 01	8.208E-02	8.379E 00	1.336E-02
4.246E 01	1.976E 01	1.012E 01	-1.158E 03	-7.967E 02	-5.157E 02	-2.810E 02	1.496E 03	2.961E 01	4.722E-02	1.517E 01	2.419E-02
4.417E 01	2.901E 01	1.818E 01	-1.210E 03	-9.899E 02	-6.054E 02	-3.845E 02	1.703E 03	4.346E 01	6.931E-02	2.723E 01	4.344E-02
4.431E 01	2.978E 01	1.843E 01	-1.216E 03	-1.006E 03	-6.127E 02	-3.933E 02	1.720E 03	4.462E 01	7.117E-02	2.761E 01	4.404E-02
4.480E 01	3.244E 01	1.929E 01	-1.237E 03	-1.058E 03	-6.370E 02	-4.212E 02	1.780E 03	4.860E 01	7.751E-02	2.890E 01	4.609E-02
4.488E 01	3.192E 01	1.943E 01	-1.241E 03	-1.066E 03	-6.410E 02	-4.255E 02	1.790E 03	4.782E 01	7.626E-02	2.911E 01	4.643E-02
4.626E 01	2.312E 01	2.184E 01	-1.237E 03	-1.196E 03	-7.088E 02	-4.891E 02	1.959E 03	3.464E 01	5.525E-02	3.272E 01	5.219E-02
4.731E 01	1.642E 01	2.368E 01	-1.174E 03	-1.292E 03	-7.609E 02	-5.315E 02	2.090E 03	2.461E 01	3.925E-02	3.548E 01	5.659E-02
4.741E 01	1.573E 01	2.385E 01	-1.166E 03	-1.301E 03	-7.657E 02	-5.354E 02	2.102E 03	2.357E 01	3.759E-02	3.573E 01	5.699E-02
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4.886E 01	1.765E 01	1.765E 01	-1.033E 03	-1.421E 03	-8.386E 02	-5.820E 02	2.283E 03	2.645E 01	4.218E-02	2.645E 01	4.218E-02
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5.080E 01	2.906E 01	2.906E 01	-8.230E 02	-1.507E 03	-9.376E 02	-6.295E 02	2.527E 03	4.354E 01	6.944E-02	4.354E 01	6.944E-02
5.290E 01	3.725E 01	3.725E 01	-4.580E 02	-1.751E 03	-1.047E 03	-7.047E 02	2.793E 03	5.581E 01	8.901E-02	5.581E 01	8.901E-02
5.340E 01	4.157E 01	4.157E 01	-3.555E 02	-1.797E 03	-1.073E 03	-7.246E 02	2.857E 03	6.227E 01	9.932E-02	6.227E 01	9.932E-02
5.414E 01	4.166E 01	4.166E 01	-1.966E 02	-1.874E 03	-1.112E 03	-7.623E 02	2.951E 03	6.241E 01	9.954E-02	6.241E 01	9.954E-02
5.415E 01	4.166E 01	4.166E 01	-1.945E 02	-1.875E 03	-1.112E 03	-7.629E 02	2.953E 03	6.241E 01	9.954E-02	6.241E 01	9.954E-02
5.491E 01	4.175E 01	4.175E 01	-3.284E 01	-1.969E 03	-1.153E 03	-8.163E 02	3.050E 03	6.255E 01	9.976E-02	6.255E 01	9.976E-02
5.576E 01	4.177E 01	4.177E 01	1.460E 02	-2.093E 03	-1.199E 03	-8.943E 02	3.160E 03	6.258E 01	9.981E-02	6.258E 01	9.981E-02
5.632E 01	4.179E 01	4.179E 01	8.853E 02	-2.181E 03	-1.225E 03	-9.561E 02	3.208E 03	6.260E 01	9.985E-02	6.260E 01	9.985E-02
5.633E 01	4.179E 01	4.179E 01	8.881E 02	-2.183E 03	-1.226E 03	-9.572E 02	3.209E 03	6.260E 01	9.985E-02	6.260E 01	9.985E-02
5.639E 01	3.950E 01	4.179E 01	9.000E 02	-2.192E 03	-1.228E 03	-9.637E 02	3.216E 03	5.918E 01	9.438E-02	6.261E 01	9.985E-02
5.653E 01	3.950E 01	4.179E 01	9.272E 02	-2.214E 03	-1.234E 03	-9.804E 02	3.234E 03	5.918E 01	9.438E-02	6.261E 01	9.986E-02
5.661E 01	4.179E 01	4.179E 01	9.440E 02	-2.227E 03	-1.237E 03	-9.900E 02	3.244E 03	6.261E 01	9.986E-02	6.261E 01	9.986E-02
5.689E 01	4.180E 01	4.180E 01	9.985E 02	-2.272E 03	-1.249E 03	-1.023E 03	3.280E 03	6.262E 01	9.988E-02	6.262E 01	9.988E-02
5.711E 01	4.163E 01	4.163E 01	1.039E 03	-2.309E 03	-1.259E 03	-1.050E 03	3.309E 03	6.237E 01	9.948E-02	6.237E 01	9.948E-02
5.784E 01	4.110E 01	4.110E 01	1.151E 03	-2.425E 03	-1.269E 03	-1.136E 03	3.402E 03	6.158E 01	9.821E-02	6.158E 01	9.821E-02
5.886E 01	4.042E 01	4.042E 01	1.246E 03	-2.560E 03	-1.332E 03	-1.249E 03	3.532E 03	6.056E 01	9.660E-02	6.056E 01	9.660E-02
6.087E 01	3.671E 01	3.671E 01	1.255E 03	-2.873E 03	-1.418E 03	-1.454E 03	3.790E 03	5.500E 01	8.772E-02	5.500E 01	8.772E-02
6.229E 01	3.411E 01	3.411E 01	1.255E 03	-3.072E 03	-1.486E 03	-1.586E 03	3.972E 03	5.110E 01	8.150E-02	5.110E 01	8.150E-02
6.475E 01	2.584E 01	2.584E 01	1.255E 03	-3.425E 03	-1.629E 03	-1.796E 03	4.269E 03	3.871E 01	6.175E-02	3.871E 01	6.175E-02

XABS	P-IB	P-OB	PDA	QOA	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/P10	P-OB/P80	P-OB/P10
6.513E 01	2.357E 01	2.458E 01	1.255E 03	-3.481E 03	-1.653E 03	-1.827E 03	4.337E 03	3.532E 01	5.633E-02	3.683E 01	5.873E-02
6.517E 01	2.357E 01	2.445E 01	1.255E 03	-3.486E 03	-1.656E 03	-1.831E 03	4.342E 03	3.532E 01	5.633E-02	3.662E 01	5.841E-02
6.537E 01	2.222E 01	2.377E 01	1.255E 03	-3.515E 03	-1.669E 03	-1.846E 03	4.506E 03	3.329E 01	5.309E-02	3.562E 01	5.681E-02
6.703E 01	1.095E 01	4.137E 00	1.421E 03	-3.713E 03	-1.763E 03	-1.950E 03	4.583E 03	1.641E 01	2.616E-02	6.199E 00	9.887E-03
6.770E 01	8.526E 00	1.008E 01	1.592E 03	-3.777E 03	-1.794E 03	-1.983E 03	4.665E 03	1.277E 01	2.037E-02	1.510E 01	2.409E-02
6.847E 01	5.740E 00	8.026E 00	1.814E 03	-3.847E 03	-1.825E 03	-2.022E 03	4.760E 03	8.600E 00	1.372E-02	1.202E 01	1.918E-02
6.919E 01	4.706E 00	6.105E 00	1.971E 03	-3.911E 03	-1.851E 03	-2.061E 03	4.848E 03	7.050E 00	1.124E-02	9.146E 00	1.459E-02
6.980E 01	3.830E 00	4.107E 00	2.073E 03	-3.963E 03	-1.870E 03	-2.094E 03	4.922E 03	5.738E 00	9.152E-03	6.153E 00	9.813E-03
7.075E 01	2.908E 00	9.950E-01	2.170E 03	-4.037E 03	-1.896E 03	-2.141E 03	5.036E 03	4.356E 00	6.948E-03	1.491E 00	2.378E-03
7.118E 01	2.490E 00	1.346E 00	2.199E 03	-4.066E 03	-1.907E 03	-2.159E 03	5.088E 03	3.730E 00	5.950E-03	2.017E 00	3.216E-03
7.271E 01	1.679E 00	2.595E 00	2.297E 03	-4.148E 03	-1.939E 03	-2.209E 03	5.273E 03	2.516E 00	4.013E-03	3.888E 00	6.201E-03
7.286E 01	1.600E 00	2.258E 00	2.306E 03	-4.154E 03	-1.942E 03	-2.213E 03	5.290E 03	2.397E 00	3.823E-03	3.383E 00	5.396E-03
7.361E 01	1.916E 00	5.750E-01	2.358E 03	-4.189E 03	-1.954E 03	-2.235E 03	5.374E 03	2.870E 00	4.577E-03	8.615E-01	1.374E-03
7.361E 01	1.917E 00	5.660E-01	2.359E 03	-4.189E 03	-1.954E 03	-2.235E 03	5.375E 03	2.872E 00	4.581E-03	8.480E-01	1.353E-03
7.494E 01	2.475E 00	0.000	2.406E 03	-4.254E 03	-1.973E 03	-2.281E 03	5.426E 03	3.708E 00	5.914E-03	0.000	0.000
7.779E 01	2.220E 00	0.000	2.500E 03	-4.237E 03	-2.003E 03	-2.233E 03	5.525E 03	3.326E 00	5.305E-03	0.000	0.000
8.169E 01	1.520E 00	0.000	2.580E 03	-4.261E 03	-2.028E 03	-2.233E 03	5.630E 03	2.277E 00	3.632E-03	0.000	0.000
8.450E 01	1.585E 00	0.000	2.614E 03	-4.280E 03	-2.047E 03	-2.233E 03	5.684E 03	2.375E 00	3.787E-03	0.000	0.000
8.736E 01	2.230E 00	0.000	2.660E 03	-4.313E 03	-2.079E 03	-2.233E 03	5.707E 03	3.341E 00	5.329E-03	0.000	0.000
8.736E 01	2.231E 00	0.000	2.660E 03	-4.313E 03	-2.079E 03	-2.233E 03	5.707E 03	3.343E 00	5.332E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.256E 02	1.256E 02	2.281E-03	4.951E-02
4.041E 01	1.691E-01	1.257E 02	2.302E-03	5.486E-02
4.138E 01	1.609E 01	1.418E 02	2.427E-03	5.870E-02
4.145E 01	1.066E 00	1.429E 02	2.436E-03	5.903E-02
4.150E 01	8.786E-01	1.438E 02	2.443E-03	5.925E-02
4.246E 01	1.542E 01	1.592E 02	2.519E-03	6.107E-02
4.417E 01	2.617E 01	1.854E 02	2.571E-03	6.029E-02
4.431E 01	2.118E 00	1.875E 02	2.577E-03	6.047E-02
4.480E 01	7.205E 00	1.947E 02	2.604E-03	6.097E-02
4.488E 01	1.191E 00	1.959E 02	2.608E-03	6.101E-02
4.626E 01	1.955E 01	2.154E 02	2.616E-03	5.770E-02
4.731E 01	1.428E 01	2.297E 02	2.561E-03	5.215E-02
4.741E 01	1.295E 00	2.310E 02	2.555E-03	5.158E-02
4.811E 01	9.196E 00	2.402E 02	2.504E-03	4.707E-02
4.886E 01	9.286E 00	2.495E 02	2.448E-03	4.149E-02
4.939E 01	6.198E 00	2.557E 02	2.407E-03	3.799E-02
5.080E 01	1.499E 01	2.707E 02	2.239E-03	2.955E-02
5.290E 01	1.699E 01	2.877E 02	2.592E-03	4.745E-02
5.340E 01	2.754E 00	2.904E 02	2.682E-03	4.535E-02
5.414E 01	3.942E 00	2.944E 02	3.160E-03	3.743E-02
5.415E 01	5.491E-02	2.944E 02	3.160E-03	3.743E-02
5.491E 01	3.948E 00	2.984E 02	2.989E-03	3.944E-02
5.576E 01	4.079E 00	3.024E 02	3.014E-03	3.789E-02
5.632E 01	1.633E 00	3.041E 02	3.262E-03	3.235E-02
5.633E 01	3.817E-02	3.041E 02	3.096E-03	3.488E-02
5.639E 01	2.103E-01	3.043E 02	3.068E-03	3.583E-02
5.653E 01	5.447E-01	3.049E 02	3.112E-03	3.503E-02
5.661E 01	3.265E-01	3.052E 02	3.400E-03	3.079E-02
5.689E 01	1.134E 00	3.063E 02	3.090E-03	3.586E-02
5.711E 01	8.899E-01	3.072E 02	3.101E-03	3.570E-02
5.784E 01	2.926E 00	3.101E 02	3.092E-03	3.609E-02
5.886E 01	4.292E 00	3.144E 02	3.118E-03	3.622E-02
6.087E 01	9.712E 00	3.241E 02	3.079E-03	3.836E-02
6.229E 01	8.185E 00	3.323E 02	3.133E-03	3.790E-02
6.475E 01	1.746E 01	3.684E 02	3.152E-03	3.731E-02
6.513E 01	3.035E 00	3.715E 02	3.133E-03	3.653E-02
6.517E 01	3.273E-01	3.718E 02	3.132E-03	3.650E-02
6.537E 01	1.646E 00	3.734E 02	3.123E-03	3.599E-02
6.703E 01	1.262E 01	3.861E 02	2.918E-03	1.946E-02
6.770E 01	4.486E 00	3.905E 02	2.950E-03	2.231E-02
6.847E 01	5.101E 00	3.956E 02	2.900E-03	1.829E-02
6.919E 01	4.203E 00	3.998E 02	2.860E-03	1.548E-02
6.980E 01	3.092E 00	4.029E 02	2.813E-03	1.242E-02
7.075E 01	3.648E 00	4.066E 02	2.708E-03	7.333E-03
7.118E 01	1.320E 00	4.079E 02	2.705E-03	7.236E-03
7.271E 01	4.811E 00	4.127E 02	2.722E-03	7.849E-03
7.286E 01	4.509E-01	4.132E 02	2.706E-03	7.201E-03
7.361E 01	1.879E 00	4.150E 02	2.637E-03	5.180E-03
7.361E 01	3.105E-03	4.150E 02	2.636E-03	5.188E-03
7.494E 01	1.254E 00	4.163E 02	2.735E-03	8.732E-03
7.779E 01	2.787E 00	4.191E 02	2.707E-03	8.009E-03
8.169E 01	2.565E 00	4.217E 02	2.635E-03	5.961E-03
8.450E 01	1.189E 00	4.228E 02	2.630E-03	6.127E-03
8.736E 01	5.566E-01	4.234E 02	2.670E-03	7.914E-03
8.736E 01	0.000	4.234E 02	2.670E-03	7.918E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1993.	(LBF)
MEASURED THRUST	2275.	(LBF)
CALCULATED SPECIFIC IMPULSE	2345.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2678.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6516	
MEASURED THRUST COEFFICIENT	0.7439	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	7223.	(LBF)
NET THRUST	2037.	(LBF)
SPECIFIC IMPULSE	2396.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6658	

MOMENTUM AND FORCES

INLET FRICTION DRAG	125.6	(LBF)
INLET MOMENTUM CHANGE	******	(LBF)
COMBUSTOR FRICTION DRAG	206.7	(LBF)
COMBUSTOR STRUT DRAG	135.72	(LBF)
COMBUSTOR MOMENTUM CHANGE	1780.	(LBF)
NOZZLE FRICTION DRAG	72.43	(LBF)
NOZZLE STRUT DRAG	66.92	(LBF)
NOZZLE MOMENTUM CHANGE	1266.	(LBF)
NOZZLE PRESSURE INTEGRAL	1405.	(LBF)
EXTERNAL FRICTION DRAG	43.10	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1267.	(LBF)
TOTAL EXTERNAL DRAG	-1310.	(LBF)
TOTAL STRUT DRAG	202.64	(LBF)
CAVITY FORCE	-1349.	(LBF)
CALCULATED LOAD CELL FORCE	-666.	(LBF)
MEASURED LOAD CELL FORCE	-384.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -143.1, 0.0,		

STATIONS

NOMINAL COWL LEADING EDGE	34.864	(IN)
SPIKE TRANSLATION	0.3866	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.271	(IN)
NOZZLE SHROUD TRAILING EDGE	73.611	(IN)
NOZZLE PLUG TRAILING EDGE	87.363	(IN)
STRUT LEADING EDGE	56.527	(IN)
STRUT TRAILING EDGE	65.127	(IN)
COMBUSTOR EXIT	62.287	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.8118	
ADDITIVE DRAG COEFFICIENT	0.0162	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2751	
DELTA PT2	0.1468	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4115	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2802	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8929	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9153	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9143	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8860	
ENTHALPY AT PO - SUPERSONIC	-11.90	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	1.73	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0261
EQUIVALENCE RATIO	0.871
COMBUSTOR EFFICIENCY	0.716
TOTAL PRESSURE RATIO	0.3057
COMBUSTOR EFFECTIVENESS	0.7588
INJECTOR DISCHARGE COEFFICIENTS	0.7340, 0.6795,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9377
NOZZLE COEFFICIENT - CT	0.8698
PROCESS EFFICIENCY	0.8846
KINETIC ENERGY EFFICIENCY	0.8615

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.372	
1C	44.300	
2A	48.847	
2C	46.250	
3A	54.137	E
3B	56.322	E
4	44.872	

Reading 96

t = 172.24 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MUPTP	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	418.499	2240	447.1(576)	1.3181	28.859	2255											
0.000	0.587	377	-38.5(91)	1.3984	28.856	953	5.170	4929	1.782	0.14319	29.778	0.8119	4684	10.969	157.3		
SPIKE TIP NS		2	0 8														
0.600	22.462	2240	447.1(576)	1.3182	28.859	2255											
0.600	20.584	2193	433.8(563)	1.3198	28.859	2233	0.366	817	1.983	0.14319	29.778	0.8119	5037	1.618	169.1		
WIND TUNNEL		3	0 0														
0.000	418.499	2240	447.1(576)	1.3181	28.859	2255											
0.000	0.669	392	-35.0(94)	1.3986	28.858	971	5.057	4912	1.782	0.15662	32.571	0.8119	5112	11.955	156.9		
SPIKE TIP NS		4	0 0														
0.600	22.462	2240	447.1(576)	1.3182	28.859	2255											
0.600	20.161	2182	430.6(560)	1.3201	28.859	2228	0.407	908	1.983	0.15662	32.571	0.8119	5112	2.209	156.9		
INLET THROAT		5	0 4														
40.400	172.540	2177	429.2(558)	1.3203	28.859	2225											
40.400	20.362	1265	181.0(310)	1.3628	28.858	1723	2.045	3524	1.835	1.05951	32.571	0.1097	4140	63.471	127.1		
INLET UPNRSK		6	0 1														
40.400	172.540	2177	429.2(558)	1.3203	28.859	2225											
40.400	20.158	1262	180.1(309)	1.3630	28.858	1721	2.051	3530	1.835	1.05353	32.571	0.1207	4197	57.800	128.9		
INLET DNNRSK		7	0 4														
40.400	117.418	2177	429.2(558)	1.3203	28.859	2225											
40.400	95.824	2072	399.4(529)	1.3240	28.859	2174	0.561	1220	1.861	1.05353	32.571	0.1207	4197	19.967	128.9		
COMBUSTOR	0	8	1 5														
40.410	173.400	2177	429.1(558)	1.3203	28.859	2225											
40.410	23.860	1317	194.6(324)	1.3596	28.858	1757											
							1.950	3426	1.835	1.15874	32.571	0.1097	4139	61.691	127.1		
COMBUSTOR	0	9	2 4														
41.380	143.861	2167	426.5(555)	1.3206	28.859	2221											
41.380	28.223	1439	226.6(356)	1.3523	28.858	1831	1.727	3163	1.846	1.15829	32.571	0.1098	3995	56.930	122.7		
COMBUSTOR	0	10	3 4														
41.445	142.137	2167	426.3(555)	1.3207	28.859	2220											
41.445	28.588	1448	228.9(358)	1.3517	28.858	1836	1.711	3143	1.847	1.15867	32.571	0.1098	3985	56.586	122.3		
COMBUSTOR	0	11	4 4														
41.500	140.881	2166	426.1(555)	1.3207	28.859	2220											
41.500	28.947	1456	230.9(360)	1.3513	28.858	1841	1.698	3125	1.847	1.16059	32.571	0.1096	3976	56.364	122.1		
COMBUSTOR	0	12	5 5														
42.460	125.757	2155	422.9(552)	1.3211	28.859	2215											
42.460	32.198	1533	251.4(381)	1.3470	28.858	1886	1.554	2930	1.854	1.14971	32.571	0.1106	3878	52.350	119.1		
COMBUSTOR	0	13	6 5														
44.165	113.093	2134	417.1(546)	1.3218	28.859	2204											
44.165	33.558	1576	262.9(392)	1.3447	28.858	1911	1.454	2778	1.858	1.10479	32.571	0.1151	3801	47.687	116.7		
COMBUSTOR	0	14	7 5														
44.310	112.255	2132	416.6(546)	1.3218	28.859	2204											
44.310	33.867	1581	264.3(394)	1.3444	28.858	1914	1.442	2760	1.859	1.10419	32.571	0.1152	3793	47.362	116.5		
COMBUSTOR	0	15	8 5														
44.800	109.136	2127	415.0(544)	1.3220	28.859	2201											
44.800	35.054	1602	270.0(399)	1.3433	28.858	1926	1.399	2693	1.860	1.10061	32.571	0.1155	3764	46.068	115.6		
COMBUSTOR	0	16	9 5														
44.880	108.608	2126	414.7(544)	1.3221	28.859	2200											
44.880	35.239	1605	270.9(400)	1.3432	28.858	1927	1.392	2682	1.860	1.09955	32.571	0.1157	3759	45.838	115.4		
COMBUSTOR	0	17	10 5														
46.260	101.896	2112	410.8(540)	1.3226	28.859	2194											
46.260	33.253	1597	268.6(398)	1.3436	28.858	1922	1.388	2667	1.863	1.03745	32.571	0.1226	3744	43.006	115.0		
COMBUSTOR	0	18	11 5														
47.310	100.217	2102	407.9(537)	1.3229	28.859	2189											
47.310	28.100	1528	250.1(379)	1.3473	28.856	1883	1.492	2810	1.862	0.96500	32.571	0.1318	3793	42.137	116.4		

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MUPTN	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 5														
47.405	100.241	2101	407.7(537)	1.3230	28.859	2188											
47.405	27.582	1920	248.0(377)	1.3477	28.858	1879	1.505	2827	1.862	0.95801	32.571	0.1327	3799	42.084	116.6		
COMBUSTOR	0	20	13 5														
48.110	100.014	2094	405.8(535)	1.3232	28.859	2185											
48.110	23.778	1459	231.7(361)	1.3511	28.858	1843	1.602	2952	1.862	0.89865	32.571	0.1415	3850	41.223	118.2		
COMBUSTOR	0	21	14 4														
48.855	97.584	2088	404.1(533)	1.3234	28.859	2182											
48.855	19.946	1398	215.6(345)	1.3547	28.858	1806	1.700	3071	1.862	0.81831	32.571	0.1554	3902	39.049	119.8		
COMBUSTOR	0	22	15 5														
49.385	95.113	2084	403.0(532)	1.3235	28.859	2180											
49.385	17.834	1364	206.7(336)	1.3567	28.858	1785	1.755	3134	1.864	0.76532	32.571	0.1662	3931	37.270	120.7		
COMBUSTOR	0	23	16 5														
50.795	94.199	2072	399.7(529)	1.3240	28.859	2174											
50.795	13.145	1253	178.0(307)	1.3635	28.858	1716	1.941	3331	1.863	0.65226	32.571	0.1950	4028	33.760	123.7		
COMBUSTOR	0	24	17 202														
52.895	75.014	2131	392.4(548)	1.3211	28.779	2205											
52.895	27.000	1654	289.4(415)	1.3400	28.779	1957	1.318	2579	1.894	0.53644	32.683	0.2379	4265	21.501	130.5	0.02	1.00
COMBUSTOR	0	25	18 200														
53.395	71.057	2126	390.7(546)	1.3213	28.779	2203											
53.395	30.183	1720	277.4(433)	1.3369	28.779	1993	1.195	2381	1.897	0.51452	32.683	0.2480	4336	19.039	132.7	0.02	1.00
COMBUSTOR	0	26	19 3														
54.135	52.305	2786	410.6(804)	1.2944	26.615	2596											
54.135	31.074	2471	308.5(703)	1.3051	26.615	2454	0.921	2260	2.150	0.48953	32.964	0.2629	4408	17.195	133.7	0.30	0.55
COMBUSTOR	0	27	20 2														
54.145	52.285	2788	410.6(804)	1.2943	26.617	2596											
54.145	31.086	2473	308.6(703)	1.3050	26.617	2485	0.920	2259	2.151	0.48916	32.964	0.2631	4410	17.175	133.8	0.30	0.55
COMBUSTOR	0	28	21 4														
54.905	51.045	2922	407.7(845)	1.2881	26.771	2644											
54.905	32.000	2628	311.6(751)	1.2979	26.772	2517	0.871	2193	2.161	0.46257	32.964	0.2782	4527	15.764	137.3	0.30	0.65
COMBUSTOR	0	29	22 4														
55.760	49.866	3075	404.2(892)	1.2807	26.953	2695											
55.760	32.518	2796	311.7(802)	1.2902	26.954	2580	0.834	2151	2.172	0.43631	32.964	0.2950	4661	14.585	141.4	0.30	0.76
COMBUSTOR	0	30	23 4														
56.320	49.967	3357	418.1(1071)	1.2693	24.868	2919											
56.320	32.858	3124	331.2(987)	1.2777	24.871	2825	0.738	2085	2.365	0.35300	33.244	0.3677	5249	11.439	157.9	0.59	0.57
COMBUSTOR	0	31	24 2														
56.330	45.972	3359	418.1(1072)	1.2692	24.871	2919											
56.330	32.864	3126	331.2(988)	1.2776	24.874	2825	0.738	2086	2.365	0.35288	33.244	0.3678	5251	11.437	158.0	0.59	0.57
COMBUSTOR	0	32	25 3														
56.385	45.758	3410	417.8(1089)	1.2665	24.925	2935											
56.385	32.273	3166	326.4(1001)	1.2755	24.928	2838	0.754	2139	2.368	0.35182	33.244	0.3689	5260	11.697	158.2	0.59	0.59
COMBUSTOR	0	33	26 3														
56.525	45.646	3430	417.3(1096)	1.2654	24.949	2941											
56.525	32.316	3188	326.3(1009)	1.2743	24.952	2845	0.750	2134	2.370	0.34923	33.244	0.3717	5281	11.580	158.9	0.59	0.60
COMBUSTOR	0	34	27 5														
56.605	46.345	3429	416.9(1095)	1.2656	24.948	2941											
56.605	33.030	3191	327.7(1010)	1.2743	24.951	2846	0.742	2113	2.368	0.35320	33.244	0.3675	5292	11.599	159.2	0.59	0.60
COMBUSTOR	0	35	28 3														
56.885	46.527	3480	415.7(1113)	1.2628	25.006	2956											
56.885	33.200	3241	325.7(1027)	1.2717	25.010	2862	0.742	2124	2.371	0.35203	33.244	0.3687	5329	11.618	160.3	0.59	0.62
COMBUSTOR	0	36	29 3														
57.111	46.678	3523	414.8(1128)	1.2604	25.056	2968											
57.111	33.271	3283	323.5(1041)	1.2695	25.061	2875	0.743	2138	2.372	0.35137	33.244	0.3694	5357	11.673	161.1	0.59	0.64
COMBUSTOR	0	37	30 4														
57.835	46.679	3615	411.9(1159)	1.2553	25.165	2994											
57.835	33.500	3376	320.4(1073)	1.2645	25.171	2904	0.737	2140	2.377	0.34586	33.244	0.3753	5431	11.502	163.4	0.59	0.68

READING = 0096 BLOCK = 76 TIME = 172.240 MACH 5.2 PT = 418.499 TT = 2239.8

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR 0 38 31 4																	
58.855	46.809	3714	408.0(1193)	1.2495	25.286	3020											
58.855	33.450	3470	313.2(1105)	1.2593	25.295	2931	0.743	2178	2.380	0.34366	33.244	0.3777	5486	11.632	165.0	0.59	0.73
COMBUSTOR 0 39 32 4																	
60.865	47.358	3837	400.6(1235)	1.2419	25.447	3051											
60.865	31.425	3538	282.6(1126)	1.2543	25.461	2944	0.825	2430	2.384	0.35562	33.244	0.3650	5449	13.430	163.9	0.59	0.79
COMBUSTOR 0 40 33 3																	
62.285	47.946	3867	395.5(1246)	1.2399	25.498	3058											
62.285	29.906	3524	259.7(1120)	1.2543	25.514	2935	0.888	2607	2.383	0.36526	33.244	0.3553	5416	14.799	162.9	0.59	0.81
SONIC THROAT 41 34 202																	
62.285	50.114	4283	395.6(1390)	1.2120	25.988	3151											
62.285	29.906	3909	234.1(1252)	1.2295	26.038	3029	0.938	2842	2.390	0.36526	33.244	0.3553	5659	16.135	170.2	0.59	1.00
COMBUSTOR REGEN 42 35 21																	
62.285	47.946	3986	445.2(1290)	1.2338	25.487	3098											
62.285	26.268	3547	260.7(1129)	1.2528	25.513	2943	1.010	2972	2.396	0.36526	33.244	0.3553	5462	16.871	164.3	0.59	0.81
NOZZLE AE 43 36 4																	
87.361	47.946	3867	395.5(1240)	1.2399	25.498	3058											
87.361	1.077	1664	-389.3(483)	1.3261	25.526	2073	3.023	6267	2.383	0.06700	33.244	1.9371	7010	6.526	210.9	0.59	0.81
NOZZLE PO 44 37 4																	
87.361	47.946	3867	395.5(1240)	1.2399	25.498	3058											
87.361	0.669	1478	-447.6(425)	1.3364	25.526	1961	3.312	6495	2.383	0.04854	33.244	2.6737	7169	4.900	215.7	0.59	0.81
NOZZLE AE REGEN 45 38 4																	
87.361	47.946	3986	445.2(1290)	1.2338	25.487	3098											
87.361	1.113	1745	-363.4(509)	1.3221	25.526	2120	3.001	6361	2.396	0.06700	33.244	1.9371	7125	6.684	214.3	0.59	0.81
NOZZLE PO REGEN 46 39 4																	
87.361	47.946	3986	445.2(1290)	1.2338	25.487	3098											
87.361	0.669	1539	-428.5(444)	1.3329	25.526	1999	3.308	6612	2.396	0.04745	33.244	2.7356	7301	4.875	219.6	0.59	0.81
FICTIVE COMBUSTR 68 61 0																	
62.285	172.540	4309	395.5(1400)	1.2213	26.017	3171											
62.285	0.669	1259	-690.0(383)	1.3450	26.079	1796	4.103	7370	2.296	0.06608	33.244	1.9643	7952	7.568	239.2	0.59	1.00
FICTIVE NOZZLE 69 62 0																	
87.361	25.449	3779	361.5(1213)	1.2412	25.499	3024											
87.361	1.465	2031	-270.6(602)	1.3094	25.526	2276	2.471	5624	2.423	0.06700	33.244	1.9371	6538	5.857	196.7	0.59	0.81

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-CB/PT0
6.981E-01	1.410E 00	0.000	-5.489E-01	0.000	0.000	0.000	2.470E-02	2.109E 00	3.369E-03	0.000	0.000
1.836E 01	1.410E 00	0.000	-4.691E 01	0.000	0.000	0.000	1.634E 02	2.109E 00	3.369E-03	0.000	0.000
3.070E 01	3.195E 00	0.000	-2.336E 02	0.000	0.000	0.000	5.053E 02	4.779E 00	7.634E-03	0.000	0.000
3.508E 01	4.254E 00	0.000	-4.749E 02	0.000	0.000	0.000	6.804E 02	6.362E 00	1.016E-02	0.000	0.000
3.526E 01	4.777E 00	6.064E 00	-5.504E 02	0.000	0.000	0.000	6.865E 02	7.145E 00	1.141E-02	9.070E 00	1.449E-02
3.527E 01	4.794E 00	6.048E 00	-5.505E 02	0.000	0.000	0.000	6.888E 02	7.170E 00	1.146E-02	9.045E 00	1.445E-02
3.555E 01	5.600E 00	5.276E 00	-5.604E 02	0.000	0.000	0.000	7.170E 02	8.376E 00	1.338E-02	7.893E 00	1.261E-02
3.593E 01	5.551E 00	4.225E 00	-5.827E 02	-2.998E 02	-2.998E 02	0.000	7.561E 02	8.302E 00	1.326E-02	6.319E 00	1.010E-02
3.606E 01	5.535E 00	5.076E 00	-5.905E 02	-3.020E 02	-3.020E 02	0.000	7.689E 02	8.278E 00	1.323E-02	7.592E 00	1.213E-02
3.648E 01	4.877E 00	7.928E 00	-6.070E 02	-3.093E 02	-3.093E 02	0.000	8.125E 02	7.294E 00	1.165E-02	1.186E 01	1.894E-02
3.701E 01	5.752E 00	1.153E 01	-6.249E 02	-3.567E 02	-3.191E 02	-3.767E 01	8.685E 02	8.604E 00	1.375E-02	1.724E 01	2.754E-02
3.739E 01	7.096E 00	1.414E 01	-6.424E 02	-3.801E 02	-3.264E 02	-5.366E 01	9.097E 02	1.061E 01	1.696E-02	2.114E 01	3.378E-02
3.803E 01	9.315E 00	1.608E 01	-6.931E 02	-4.188E 02	-3.393E 02	-7.946E 01	9.792E 02	1.393E 01	2.226E-02	2.404E 01	3.841E-02
3.841E 01	1.442E 01	1.725E 01	-7.331E 02	-4.429E 02	-3.479E 02	-9.499E 01	1.022E 03	2.157E 01	3.446E-02	2.580E 01	4.122E-02
3.875E 01	1.887E 01	1.875E 01	-7.770E 02	-4.648E 02	-3.563E 02	-1.085E 02	1.060E 03	2.823E 01	4.510E-02	2.804E 01	4.480E-02
3.888E 01	2.066E 01	1.935E 01	-7.932E 02	-4.738E 02	-3.599E 02	-1.139E 02	1.076E 03	3.090E 01	4.937E-02	2.894E 01	4.624E-02
3.901E 01	2.232E 01	2.052E 01	-8.077E 02	-4.823E 02	-3.634E 02	-1.189E 02	1.090E 03	3.339E 01	5.335E-02	3.070E 01	4.904E-02
3.939E 01	2.115E 01	2.412E 01	-8.375E 02	-5.091E 02	-3.749E 02	-1.342E 02	1.134E 03	3.163E 01	5.053E-02	3.608E 01	5.765E-02
3.950E 01	2.082E 01	2.010E 01	-8.424E 02	-5.167E 02	-3.783E 02	-1.384E 02	1.146E 03	3.115E 01	4.976E-02	3.006E 01	4.802E-02
3.988E 01	1.990E 01	5.400E 00	-8.711E 02	-5.451E 02	-3.916E 02	-1.535E 02	1.191E 03	2.976E 01	4.755E-02	8.076E 00	1.290E-02
4.000E 01	1.962E 01	5.416E 00	-8.837E 02	-5.538E 02	-3.959E 02	-1.579E 02	1.205E 03	2.935E 01	4.689E-02	8.100E 00	1.294E-02
4.040E 01	2.354E 01	5.470E 00	-9.277E 02	-5.846E 02	-4.115E 02	-1.732E 02	1.251E 03	3.521E 01	5.625E-02	8.181E 00	1.307E-02
4.041E 01	2.364E 01	5.471E 00	-9.287E 02	-5.854E 02	-4.119E 02	-1.735E 02	1.253E 03	3.535E 01	5.648E-02	8.183E 00	1.307E-02
4.138E 01	3.313E 01	5.602E 00	-1.056E 03	-6.725E 02	-4.550E 02	-2.175E 02	1.367E 03	4.956E 01	7.917E-02	8.379E 00	1.339E-02
4.144E 01	3.377E 01	5.611E 00	-1.065E 03	-6.791E 02	-4.582E 02	-2.210E 02	1.375E 03	5.051E 01	8.069E-02	8.392E 00	1.341E-02
4.150E 01	3.431E 01	5.867E 00	-1.073E 03	-6.848E 02	-4.609E 02	-2.239E 02	1.382E 03	5.132E 01	8.199E-02	8.775E 00	1.402E-02
4.246E 01	1.980E 01	1.031E 01	-1.156E 03	-7.880E 02	-5.108E 02	-2.772E 02	1.496E 03	2.961E 01	4.731E-02	1.542E 01	2.463E-02
4.416E 01	2.901E 01	1.820E 01	-1.207E 03	-9.780E 02	-5.996E 02	-3.792E 02	1.703E 03	4.338E 01	6.931E-02	2.722E 01	4.348E-02
4.431E 01	2.979E 01	1.845E 01	-1.212E 03	-9.949E 02	-6.069E 02	-3.881E 02	1.720E 03	4.456E 01	7.119E-02	2.760E 01	4.410E-02
4.480E 01	3.244E 01	1.932E 01	-1.234E 03	-1.046E 03	-6.309E 02	-4.156E 02	1.780E 03	4.852E 01	7.751E-02	2.890E 01	4.617E-02
4.488E 01	3.193E 01	1.946E 01	-1.238E 03	-1.054E 03	-6.347E 02	-4.197E 02	1.790E 03	4.776E 01	7.630E-02	2.911E 01	4.650E-02
4.626E 01	2.313E 01	2.190E 01	-1.233E 03	-1.104E 03	-7.015E 02	-4.827E 02	1.960E 03	3.460E 01	5.528E-02	3.276E 01	5.233E-02
4.731E 01	1.644E 01	2.376E 01	-1.170E 03	-1.277E 03	-7.525E 02	-5.248E 02	2.090E 03	2.459E 01	3.929E-02	3.553E 01	5.677E-02
4.740E 01	1.576E 01	2.392E 01	-1.163E 03	-1.286E 03	-7.571E 02	-5.286E 02	2.101E 03	2.358E 01	3.766E-02	3.578E 01	5.717E-02
4.811E 01	1.069E 01	1.931E 01	-1.103E 03	-1.346E 03	-7.914E 02	-5.541E 02	2.189E 03	1.598E 01	2.554E-02	2.888E 01	4.614E-02
4.885E 01	1.444E 01	1.444E 01	-1.041E 03	-1.403E 03	-8.278E 02	-5.748E 02	2.283E 03	2.160E 01	3.451E-02	2.160E 01	3.451E-02
4.938E 01	1.097E 01	1.097E 01	-1.006E 03	-1.440E 03	-8.537E 02	-5.858E 02	2.349E 03	1.641E 01	2.622E-02	1.641E 01	2.622E-02
5.079E 01	1.924E 01	1.924E 01	-8.943E 02	-1.545E 03	-9.230E 02	-6.216E 02	2.527E 03	2.877E 01	4.597E-02	2.877E 01	4.597E-02
5.289E 01	2.700E 01	2.700E 01	-6.397E 02	-1.740E 03	-1.027E 03	-7.128E 02	2.793E 03	4.038E 01	6.452E-02	4.038E 01	6.452E-02
5.339E 01	3.018E 01	3.018E 01	-5.654E 02	-1.793E 03	-1.052E 03	-7.410E 02	2.857E 03	4.514E 01	7.212E-02	4.514E 01	7.212E-02
5.413E 01	3.107E 01	3.107E 01	-4.484E 02	-1.877E 03	-1.089E 03	-7.886E 02	2.951E 03	4.648E 01	7.425E-02	4.648E 01	7.425E-02
5.414E 01	3.109E 01	3.109E 01	-4.468E 02	-1.878E 03	-1.089E 03	-7.893E 02	2.952E 03	4.649E 01	7.428E-02	4.649E 01	7.428E-02
5.490E 01	3.200E 01	3.200E 01	-3.246E 02	-1.973E 03	-1.127E 03	-8.460E 02	3.050E 03	4.786E 01	7.646E-02	4.786E 01	7.646E-02
5.576E 01	3.252E 01	3.252E 01	-1.861E 02	-2.089E 03	-1.170E 03	-9.192E 02	3.160E 03	4.864E 01	7.770E-02	4.864E 01	7.770E-02
5.632E 01	3.286E 01	3.286E 01	4.040E 02	-2.167E 03	-1.195E 03	-9.725E 02	3.208E 03	4.914E 01	7.851E-02	4.914E 01	7.851E-02
5.633E 01	3.286E 01	3.286E 01	4.062E 02	-2.169E 03	-1.195E 03	-9.735E 02	3.209E 03	4.915E 01	7.853E-02	4.915E 01	7.853E-02
5.638E 01	3.165E 01	3.290E 01	4.156E 02	-2.176E 03	-1.197E 03	-9.790E 02	3.216E 03	4.734E 01	7.563E-02	4.920E 01	7.861E-02
5.652E 01	3.165E 01	3.298E 01	4.370E 02	-2.196E 03	-1.203E 03	-9.930E 02	3.234E 03	4.734E 01	7.563E-02	4.933E 01	7.881E-02
5.660E 01	3.303E 01	3.303E 01	4.503E 02	-2.207E 03	-1.206E 03	-1.001E 03	3.244E 03	4.940E 01	7.893E-02	4.940E 01	7.893E-02
5.688E 01	3.320E 01	3.320E 01	4.935E 02	-2.245E 03	-1.217E 03	-1.028E 03	3.260E 03	4.966E 01	7.933E-02	4.966E 01	7.933E-02
5.711E 01	3.327E 01	3.327E 01	5.259E 02	-2.276E 03	-1.226E 03	-1.050E 03	3.309E 03	4.976E 01	7.950E-02	4.976E 01	7.950E-02
5.783E 01	3.350E 01	3.350E 01	6.164E 02	-2.374E 03	-1.254E 03	-1.120E 03	3.402E 03	5.010E 01	8.005E-02	5.010E 01	8.005E-02
5.885E 01	3.345E 01	3.345E 01	6.939E 02	-2.504E 03	-1.293E 03	-1.211E 03	3.532E 03	5.003E 01	7.993E-02	5.003E 01	7.993E-02
6.086E 01	3.142E 01	3.142E 01	7.015E 02	-2.749E 03	-1.373E 03	-1.377E 03	3.790E 03	4.700E 01	7.509E-02	4.700E 01	7.509E-02
6.228E 01	2.991E 01	2.991E 01	7.015E 02	-2.916E 03	-1.434E 03	-1.484E 03	3.972E 03	4.473E 01	7.146E-02	4.473E 01	7.146E-02
6.475E 01	2.302E 01	2.302E 01	7.015E 02	-3.217E 03	-1.559E 03	-1.658E 03	4.289E 03	3.443E 01	5.501E-02	3.443E 01	5.501E-02

READING = 0096 BLOCK = 76 TIME = 172.240 MACH 5.2 PT = 418.499 TT = 2239.8 PAGE 5

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.512E 01	2.130E 01	2.197E 01	7.015E 02	-3.265E 03	-1.580E 03	-1.684E 03	4.337E 03	3.186E 01	5.090E-02	3.286E 01	5.250E-02
6.516E 01	2.130E 01	2.186E 01	7.015E 02	-3.270E 03	-1.583E 03	-1.687E 03	4.342E 03	3.186E 01	5.090E-02	3.269E 01	5.223E-02
6.536E 01	2.006E 01	2.130E 01	7.015E 02	-3.294E 03	-1.594E 03	-1.700E 03	4.368E 03	3.000E 01	4.792E-02	3.186E 01	5.090E-02
6.702E 01	9.737E 00	4.162E 00	8.525E 02	-3.458E 03	-1.674E 03	-1.784E 03	4.583E 03	1.456E 01	2.327E-02	6.226E 00	9.946E-03
6.769E 01	7.454E 00	8.700E 00	1.005E 03	-3.509E 03	-1.700E 03	-1.809E 03	4.665E 03	1.115E 01	1.781E-02	1.301E 01	2.079E-02
6.846E 01	4.830E 00	6.915E 00	1.196E 03	-3.565E 03	-1.726E 03	-1.839E 03	4.760E 03	7.224E 00	1.154E-02	1.034E 01	1.652E-02
6.918E 01	3.950E 00	5.245E 00	1.330E 03	-3.619E 03	-1.746E 03	-1.872E 03	4.848E 03	5.908E 00	9.439E-03	7.845E 00	1.253E-02
6.979E 01	3.205E 00	3.595E 00	1.416E 03	-3.663E 03	-1.762E 03	-1.901E 03	4.922E 03	4.794E 00	7.658E-03	5.377E 00	8.590E-03
7.074E 01	2.527E 00	1.025E 00	1.501E 03	-3.721E 03	-1.783E 03	-1.938E 03	5.036E 03	3.779E 00	6.038E-03	1.533E 00	2.449E-03
7.117E 01	2.220E 00	1.309E 00	1.527E 03	-3.744E 03	-1.792E 03	-1.952E 03	5.088E 03	3.320E 00	5.305E-03	1.958E 00	3.128E-03
7.270E 01	1.496E 00	2.320E 00	1.616E 03	-3.808E 03	-1.819E 03	-1.989E 03	5.273E 03	2.237E 00	3.575E-03	3.470E 00	5.544E-03
7.285E 01	1.425E 00	2.031E 00	1.624E 03	-3.814E 03	-1.821E 03	-1.992E 03	5.290E 03	2.131E 00	3.405E-03	3.037E 00	4.853E-03
7.360E 01	1.681E 00	5.850E-01	1.671E 03	-3.842E 03	-1.832E 03	-2.010E 03	5.374E 03	2.514E 00	4.017E-03	8.750E-01	1.398E-03
7.361E 01	1.682E 00	5.773E-01	1.672E 03	-3.842E 03	-1.832E 03	-2.010E 03	5.375E 03	2.516E 00	4.020E-03	8.634E-01	1.379E-03
7.493E 01	2.135E 00	0.000	1.713E 03	-3.894E 03	-1.848E 03	-2.046E 03	5.426E 03	3.193E 00	5.102E-03	0.000	0.000
7.778E 01	2.010E 00	0.000	1.795E 03	-3.976E 03	-1.874E 03	-2.102E 03	5.525E 03	3.006E 00	4.803E-03	0.000	0.000
8.168E 01	1.365E 00	0.000	1.868E 03	-3.998E 03	-1.897E 03	-2.102E 03	5.630E 03	2.042E 00	3.262E-03	0.000	0.000
8.449E 01	1.420E 00	0.000	1.899E 03	-4.016E 03	-1.914E 03	-2.102E 03	5.684E 03	2.124E 00	3.393E-03	0.000	0.000
8.735E 01	1.930E 00	0.000	1.939E 03	-4.047E 03	-1.945E 03	-2.102E 03	5.707E 03	2.887E 00	4.612E-03	0.000	0.000
8.736E 01	1.931E 00	0.000	1.939E 03	-4.047E 03	-1.945E 03	-2.102E 03	5.707E 03	2.888E 00	4.614E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.256E 02	1.256E 02	2.280E-03	4.946E-02
4.041E 01	1.691E-01	1.258E 02	2.301E-03	5.491E-02
4.138E 01	1.607E 01	1.419E 02	2.425E-03	5.871E-02
4.144E 01	1.067E 00	1.429E 02	2.433E-03	5.899E-02
4.150E 01	9.122E-01	1.438E 02	2.440E-03	5.941E-02
4.246E 01	1.547E 01	1.593E 02	2.516E-03	6.112E-02
4.416E 01	2.622E 01	1.855E 02	2.567E-03	6.024E-02
4.431E 01	2.155E 00	1.877E 02	2.574E-03	6.041E-02
4.480E 01	7.227E 00	1.949E 02	2.601E-03	6.095E-02
4.488E 01	1.164E 00	1.961E 02	2.605E-03	6.101E-02
4.626E 01	1.965E 01	2.157E 02	2.613E-03	5.767E-02
4.731E 01	1.433E 01	2.301E 02	2.558E-03	5.213E-02
4.740E 01	1.256E 00	2.313E 02	2.552E-03	5.157E-02
4.811E 01	9.262E 00	2.406E 02	2.504E-03	4.713E-02
4.885E 01	9.269E 00	2.498E 02	2.454E-03	4.175E-02
4.938E 01	6.190E 00	2.560E 02	2.426E-03	3.844E-02
5.079E 01	1.494E 01	2.710E 02	2.314E-03	3.084E-02
5.289E 01	1.764E 01	2.886E 02	2.481E-03	4.277E-02
5.339E 01	3.250E 00	2.919E 02	2.552E-03	4.288E-02
5.413E 01	4.724E 00	2.966E 02	2.964E-03	3.721E-02
5.414E 01	6.519E-02	2.967E 02	2.976E-03	3.700E-02
5.490E 01	4.760E 00	3.014E 02	2.960E-03	3.603E-02
5.576E 01	4.967E 00	3.064E 02	2.995E-03	3.548E-02
5.632E 01	1.945E 00	3.083E 02	3.177E-03	3.115E-02
5.633E 01	4.598E-02	3.084E 02	3.124E-03	3.190E-02
5.638E 01	2.541E-01	3.086E 02	3.112E-03	3.210E-02
5.652E 01	6.452E-01	3.093E 02	3.127E-03	3.180E-02
5.660E 01	3.788E-01	3.097E 02	3.260E-03	3.018E-02
5.688E 01	1.320E 00	3.110E 02	3.118E-03	3.224E-02
5.711E 01	1.048E 00	3.120E 02	3.125E-03	3.220E-02
5.783E 01	3.353E 00	3.154E 02	3.122E-03	3.213E-02
5.885E 01	4.729E 00	3.201E 02	3.133E-03	3.211E-02
6.086E 01	1.007E 01	3.302E 02	3.102E-03	3.311E-02
6.228E 01	7.983E 00	3.382E 02	3.107E-03	3.321E-02
6.475E 01	1.621E 01	3.718E 02	3.106E-03	3.265E-02
6.512E 01	2.757E 00	3.746E 02	3.089E-03	3.203E-02
6.516E 01	2.965E-01	3.749E 02	3.088E-03	3.200E-02
6.536E 01	1.491E 00	3.764E 02	3.079E-03	3.154E-02
6.702E 01	1.143E 01	3.878E 02	2.868E-03	1.748E-02
6.769E 01	4.021E 00	3.918E 02	2.893E-03	1.905E-02
6.846E 01	4.497E 00	3.963E 02	2.836E-03	1.540E-02
6.918E 01	3.672E 00	4.000E 02	2.791E-03	1.297E-02
6.979E 01	2.695E 00	4.027E 02	2.744E-03	1.045E-02
7.074E 01	3.223E 00	4.059E 02	2.643E-03	6.449E-03
7.117E 01	1.193E 00	4.071E 02	2.641E-03	6.415E-03
7.270E 01	4.318E 00	4.114E 02	2.653E-03	6.799E-03
7.285E 01	4.014E-01	4.118E 02	2.636E-03	6.304E-03
7.360E 01	1.680E 00	4.135E 02	2.565E-03	4.551E-03
7.361E 01	2.792E-03	4.135E 02	2.565E-03	4.541E-03
7.493E 01	1.107E 00	4.146E 02	2.661E-03	7.372E-03
7.778E 01	2.463E 00	4.171E 02	2.640E-03	7.011E-03
8.168E 01	2.294E 00	4.194E 02	2.563E-03	5.185E-03
8.449E 01	1.059E 00	4.204E 02	2.558E-03	5.319E-03
8.735E 01	4.900E-01	4.209E 02	2.596E-03	6.694E-03
8.736E 01	0.000	4.209E 02	2.596E-03	6.697E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1345.	(LBF)
MEASURED THRUST	1666.	(LBF)
CALCULATED SPECIFIC IMPULSE	2331.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2868.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4392	
MEASURED THRUST COEFFICIENT	0.5442	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6646.	(LBF)
NET THRUST	1452.	(LBF)
SPECIFIC IMPULSE	2518.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.4743	

MOMENTUM AND FORCES

INLET FRICTION DRAG	125.6	(LBF)
INLET MOMENTUM CHANGE	******	(LBF)
COMBUSTOR FRICTION DRAG	212.5	(LBF)
COMBUSTOR STRUT DRAG	100.60	(LBF)
COMBUSTOR MOMENTUM CHANGE	1276.	(LBF)
NOZZLE FRICTION DRAG	65.30	(LBF)
NOZZLE STRUT DRAG	49.60	(LBF)
NOZZLE MOMENTUM CHANGE	1123.	(LBF)
NOZZLE PRESSURE INTEGRAL	1237.	(LBF)
EXTERNAL FRICTION DRAG	43.35	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1268.	(LBF)
TOTAL EXTERNAL DRAG	-1311.	(LBF)
TOTAL STRUT DRAG	150.21	(LBF)
CAVITY FORCE	-1385.	(LBF)
CALCULATED LOAD CELL FORCE	-1351.	(LBF)
MEASURED LOAD CELL FORCE	-1028.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -143.4,	0.0,	

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.8119	
ADDITIVE DRAG COEFFICIENT	0.0162	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2754	
DELTA PT2	0.1469	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4123	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2806	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8928	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9153	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9148	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8864	
ENTHALPY AT PO - SUPERSONIC	-11.89	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	1.77	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0177
EQUIVALENCE RATIO	0.590
COMBUSTOR EFFICIENCY	0.807
TOTAL PRESSURE RATIO	0.2779
COMBUSTOR EFFECTIVENESS	0.7941
INJECTOR DISCHARGE COEFFICIENTS	0.7397, 0.6899,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9327
NOZZLE COEFFICIENT - CT	0.8657
PROCESS EFFICIENCY	0.8727
KINETIC ENERGY EFFICIENCY	0.8503

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3846	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.269	(IN)
NOZZLE SHROUD TRAILING EDGE	73.609	(IN)
NOZZLE PLUG TRAILING EDGE	87.361	(IN)
STRUT LEADING EDGE	56.525	(IN)
STRUT TRAILING EDGE	65.125	(IN)
COMBUSTOR EXIT	62.285	(IN)

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.370	
1C	44.300	
2A	48.845	
2C	46.250	
3A	54.135	E
3B	56.320	E
4	44.870	

Reading 96

t = 180.34 sec.

READING = 0096 BLOCK = 85 TIME = 180.340 MACH 5.2 PT = 418.749 TT = 2241.2

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	418.749	2241	447.5(576)	1.3181	28.859	2256											
0.000	0.587	378	-38.4(91)	1.3984	28.858	954	5.170	4931	1.782	0.14320	29.793	0.8123	4688	10.974	157.4		
SPIKE TIP NS		2	0 8														
0.600	22.462	2241	447.5(576)	1.3181	28.859	2256											
0.600	20.582	2194	434.2(563)	1.3197	28.859	2234	0.366	818	1.984	0.14320	29.793	0.8123	5039	1.819	169.1		
WIND TUNNEL		3	0 0														
0.000	418.749	2241	447.5(576)	1.3181	28.859	2256											
0.000	0.668	392	-35.0(94)	1.3986	28.858	972	5.057	4914	1.782	0.15656	32.572	0.8123	5113	11.955	157.0		
SPIKE TIP NS		4	0 0														
0.600	22.462	2241	447.5(576)	1.3181	28.859	2256											
0.600	20.161	2183	431.0(560)	1.3201	28.859	2228	0.407	908	1.984	0.15656	32.572	0.8123	5113	2.209	157.0		
INLET THROAT		5	0 4														
40.400	171.509	2183	431.0(560)	1.3201	28.859	2228											
40.400	20.509	1274	183.2(312)	1.3623	28.858	1729	2.037	3522	1.836	1.05913	32.572	0.1098	4142	63.370	127.2		
INLET UPNRBK		6	0 2														
40.400	171.509	2183	431.0(560)	1.3201	28.859	2228											
40.400	20.289	1270	182.2(312)	1.3625	28.858	1726	2.044	3528	1.836	1.05266	32.572	0.1208	4200	57.719	128.9		
INLET DNNRBK		7	0 4														
40.400	117.346	2183	431.0(560)	1.3201	28.859	2228											
40.400	95.688	2077	401.1(530)	1.3238	28.859	2177	0.562	1224	1.862	1.05266	32.572	0.1208	4200	20.019	128.9		
COMBUSTOR	0	8	1 5														
40.410	172.355	2183	431.0(560)	1.3201	28.859	2228											
40.410	24.022	1326	196.9(326)	1.3590	28.858	1762	1.942	3423	1.836	1.15778	32.572	0.1098	4141	61.584	127.1		
COMBUSTOR	0	9	2 5														
41.376	143.336	2175	428.7(558)	1.3204	28.859	2224											
41.376	28.437	1449	229.1(358)	1.3517	28.858	1837	1.720	3160	1.847	1.15807	32.572	0.1098	3998	56.864	122.8		
COMBUSTOR	0	10	3 5														
41.441	141.628	2174	428.5(557)	1.3204	28.859	2224											
41.441	28.808	1458	231.5(361)	1.3512	28.858	1842	1.704	3139	1.848	1.15848	32.572	0.1098	3988	56.518	122.4		
COMBUSTOR	0	11	4 5														
41.500	140.161	2174	428.3(557)	1.3204	28.859	2224											
41.500	29.168	1466	233.7(363)	1.3507	28.858	1847	1.690	3120	1.849	1.15938	32.572	0.1097	3979	56.223	122.1		
COMBUSTOR	0	12	5 5														
42.460	125.097	2164	425.4(554)	1.3208	28.859	2219											
42.460	32.466	1545	254.6(384)	1.3464	28.858	1893	1.545	2924	1.855	1.14785	32.572	0.1108	3881	52.158	119.2		
COMBUSTOR	0	13	6 5														
44.161	112.633	2145	420.2(549)	1.3214	28.859	2210											
44.161	33.973	1591	267.0(396)	1.3439	28.858	1919	1.443	2769	1.860	1.10425	32.572	0.1152	3805	47.514	116.8		
COMBUSTOR	0	14	7 5														
44.310	111.781	2143	419.7(549)	1.3215	28.859	2209											
44.310	34.301	1597	268.5(398)	1.3436	28.858	1922	1.431	2751	1.860	1.10361	32.572	0.1152	3797	47.174	116.6		
COMBUSTOR	0	15	8 5														
44.800	108.674	2138	418.3(547)	1.3216	28.859	2207											
44.800	35.553	1619	274.5(404)	1.3425	28.858	1935	1.386	2682	1.862	1.10000	32.572	0.1156	3768	45.848	115.7		
COMBUSTOR	0	16	9 5														
44.876	108.167	2138	418.1(547)	1.3217	28.859	2206											
44.876	35.745	1622	275.5(405)	1.3423	28.858	1937	1.379	2671	1.862	1.09898	32.572	0.1157	3763	45.618	115.5		
COMBUSTOR	0	17	10 5														
46.260	101.399	2125	414.5(544)	1.3221	28.859	2200											
46.260	33.823	1616	273.8(403)	1.3446	28.858	1933	1.372	2653	1.865	1.03695	32.572	0.1226	3748	42.754	115.1		
COMBUSTOR	0	18	11 5														
47.310	99.595	2116	411.9(541)	1.3224	28.859	2196											
47.310	28.572	1548	255.5(385)	1.3462	28.858	1895	1.477	2798	1.865	0.96443	32.572	0.1319	3797	41.934	116.6		

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READING = 0096  BLOCK =  85  TIME = 180,340  MACH  5,2  PT = 418,749  TT = 2241,2                                                        PAGE  2

                 P      T      H           GAMMA  MOLWT SONV  MACH  VEL    S     W/A      W      A/AC    MOPTM    Q      IVAC  PHI  ETAC
COMBUSTOR           0  19   12   5
47,401      99,648 2115   411,7( 541) 1,3225 28,859 2195
47,401      28,129 1541   253,6( 383) 1,3466 28,858 1891
                                                          1,488 2813 1,865 0,95884 32,572 0,1326   3803 41,911 116,8
COMBUSTOR           0  20   13   5
48,110      99,208 2109   410,1( 539) 1,3227 28,859 2192
48,110      24,196 1479   237,2( 367) 1,3500 28,858 1855 1,585 2941 1,864 0,89815 32,572 0,1416   3854 41,046 118,3
COMBUSTOR           0  21   14   4
48,851      96,635 2104   408,5( 538) 1,3229 28,859 2190
48,851      20,333 1420   221,4( 351) 1,3534 28,858 1819 1,662 3060 1,865 0,81832 32,572 0,1554   3907 38,909 119,9
COMBUSTOR           0  22   15   5
49,381      94,068 2100   407,5( 537) 1,3230 28,859 2188
49,381      18,194 1386   212,6( 342) 1,3554 28,858 1799 1,736 3123 1,867 0,76533 32,572 0,1662   3935 37,139 120,8
COMBUSTOR           0  23   16   4
50,791      88,405 2090   404,6( 534) 1,3233 28,859 2183
50,791      14,029 1309   192,4( 322) 1,3601 28,858 1751 1,861 3259 1,869 0,65227 32,572 0,1950   4000 33,033 122,8
COMBUSTOR           0  24   17 202
52,891      72,951 2146   396,7( 552) 1,3205 28,779 2213
52,891      22,200 1596   243,9( 399) 1,3429 28,779 1924 1,437 2765 1,898 0,53644 32,684 0,2379   4161 23,051 127,3 0,02 1,00
COMBUSTOR           0  25   18 200
53,391      69,234 2139   394,5( 550) 1,3208 28,779 2209
53,391      25,600 1671   264,2( 420) 1,3392 28,779 1966 1,299 2553 1,901 0,51492 32,684 0,2480   4220 20,418 129,1 0,02 1,00
COMBUSTOR           0  26   19   4
54,131      50,728 2721   407,8( 764) 1,2967 27,266 2536
54,131      26,115 2332   285,8( 643) 1,3099 27,266 2360 1,047 2471 2,101 0,48840 32,888 0,2629   4285 18,757 130,3 0,23 0,64
COMBUSTOR           0  27   20   2
54,141      50,705 2723   407,8( 764) 1,2966 27,268 2537
54,141      26,121 2334   285,8( 644) 1,3098 27,268 2361 1,047 2471 2,101 0,48803 32,888 0,2631   4286 18,739 130,3 0,23 0,64
COMBUSTOR           0  28   21   4
54,901      49,018 2864   404,7( 806) 1,2900 27,435 2587
54,901      26,650 2491   286,6( 690) 1,3025 27,436 2425 1,002 2430 2,113 0,46151 32,888 0,2782   4383 17,428 133,3 0,23 0,77
COMBUSTOR           0  29   22   4
55,760      47,472 3019   401,3( 853) 1,2826 27,623 2640
55,760      27,279 2666   288,1( 742) 1,2948 27,624 2493 0,955 2380 2,123 0,43519 32,888 0,2950   4494 16,094 136,6 0,23 0,92
COMBUSTOR           0  30   23   3
56,316      42,851 3399   410,8(1036) 1,2656 26,165 2859
56,316      27,686 3097   303,2( 932) 1,2766 26,169 2741
                                                          0,847 2321 2,280 0,35138 33,092 0,3677   4995 12,675 150,9 0,43 0,74
COMBUSTOR           0  31   24   2
56,326      42,845 3401   410,8(1036) 1,2655 26,168 2860
56,326      27,694 3099   303,1( 933) 1,2765 26,172 2741 0,847 2321 2,280 0,35120 33,092 0,3679   4996 12,666 151,0 0,43 0,74
COMBUSTOR           0  32   25   3
56,381      42,747 3423   410,6(1043) 1,2643 26,193 2866
56,381      27,392 3114   300,3( 938) 1,2757 26,198 2746 0,856 2349 2,282 0,35027 33,092 0,3689   5004 12,787 151,2 0,43 0,75
COMBUSTOR           0  33   26   3
56,521      42,613 3444   410,1(1050) 1,2632 26,218 2872
56,521      27,443 3138   300,5( 945) 1,2745 26,223 2754 0,851 2343 2,283 0,34769 33,092 0,3716   5021 12,658 151,7 0,43 0,76
COMBUSTOR           0  34   27   4
56,601      43,186 3455   409,9(1054) 1,2626 26,232 2875
56,601      27,898 3151   300,6( 949) 1,2739 26,237 2758 0,848 2338 2,282 0,35152 33,092 0,3675   5031 12,774 152,0 0,43 0,77
COMBUSTOR           0  35   28   3
56,881      43,342 3499   409,0(1068) 1,2602 26,285 2888
56,881      28,100 3195   299,4( 964) 1,2716 26,290 2772 0,845 2342 2,284 0,35036 33,092 0,3688   5062 12,749 153,0 0,43 0,79
COMBUSTOR           0  36   29   3
57,107      43,476 3534   408,3(1080) 1,2583 26,327 2898
57,107      28,207 3229   297,9( 975) 1,2698 26,333 2782 0,845 2350 2,285 0,34976 33,092 0,3694   5085 12,773 153,7 0,43 0,81
COMBUSTOR           0  37   30   4
57,831      43,430 3616   406,0(1106) 1,2536 26,429 2920
57,831      28,550 3317   296,7(1003) 1,2653 26,437 2809 0,832 2338 2,288 0,34428 33,092 0,3753   5149 12,510 155,6 0,43 0,86
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READING = 0096  BLOCK =  85  TIME = 180.340  MACH  5.2  PT = 416.749  TT = 2241.2                                              PAGE  3

                P     T       H           GAMMA  MOLWT SONV  MACH  VEL   S      W/A      W      A/AC   MOMTM   Q     IVAC  PHI  ETAC
COMBUSTOR       0   38   31    4
58.851     43.546 3694  403.0(1132) 1.2489 26.531 2940
58.851     28.575 3392  291.3(1028) 1.2611 26.541 2831 0.835 2365 2.290 0.34208 33.092 0.3777   5196 12.570 157.0 0.43 0.91
COMBUSTOR       0   39   32    3
60.861     44.491 3707  397.5(1136) 1.2481 26.564 2943
60.861     27.750 3370  272.6(1019) 1.2616 26.575 2820 0.886 2499 2.288 0.35399 33.092 0.3650   5165 13.750 156.1 0.43 0.92
COMBUSTOR       0   40   33    2
62.281     45.311 3690  393.6(1130) 1.2490 26.557 2938
62.281     27.300 3329  260.6(1005) 1.2633 26.568 2806 0.919 2579 2.286 0.36358 33.092 0.3553   5137 14.574 155.3 0.43 0.92
SONIC THROAT       41   34 202
62.281     47.312 3833  393.6(1177) 1.2406 26.726 2974
62.281     27.300 3437  245.1(1040) 1.2570 26.744 2834 0.962 2726 2.286 0.36358 33.092 0.3553   5288 15.400 159.8 0.43 1.00
COMBUSTOR  REGEN   42   35  21
62.281     45.311 3827  446.4(1178) 1.2425 26.548 2984
62.281     27.122 3456  306.6(1049) 1.2580 26.564 2852 0.927 2645 2.300 0.36358 33.092 0.3553   5189 14.944 156.8 0.43 0.92
NOZZLE  AE         43   36    4
87.357     45.311 3690  393.6(1125) 1.2490 26.557 2938
87.357      1.012 1561 -320.9( 432) 1.3325 26.574 1973 3.031 5979 2.286 0.06670 33.092 1.9371   6652  6.198 201.0 0.43 0.92
NOZZLE  PO         44   37    4
87.357     45.311 3690  393.6(1125) 1.2490 26.557 2938
87.357      0.668 1406 -366.9( 386) 1.3416 26.574 1878 3.284 6169 2.286 0.05044 33.092 2.5613   6783  4.836 205.0 0.43 0.92
NOZZLE  AE REGEN   45   38    4
87.357     45.311 3827  446.4(1178) 1.2425 26.548 2984
87.357      1.052 1651 -293.7( 459) 1.3276 26.574 2028 3.005 6085 2.300 0.06670 33.092 1.9371   6781  6.308 204.9 0.43 0.92
NOZZLE  PO REGEN   46   39    4
87.357     45.311 3827  446.4(1178) 1.2425 26.548 2984
87.357      0.668 1474 -346.7( 406) 1.3375 26.574 1921 3.280 6299 2.300 0.04912 33.092 2.6303   6930  4.809 209.4 0.43 0.92
FICTIVE COMBUSTR   68   61    0
62.281    171.509 3841  393.6(1180) 1.2453 26.735 2982
62.281      0.668 1052 -521.6( 283) 1.3623 26.753 1632 4.147 6767 2.190 0.07447 33.092 1.7349   7257  7.832 219.3 0.43 1.00
FICTIVE NOZZLE     69   62    0
87.357     22.937 3620  368.2(1106) 1.2498 26.557 2910
87.357      1.427 1959 -198.7( 554) 1.3134 26.574 2194 2.428 5326 2.330 0.06670 33.092 1.9371   6186  5.521 186.9 0.43 0.92
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XABS	P-IB	P-OB	PDA	QDX	Q-IB	Q-OB	CAxALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.405E 00	0.000	-5.489E-01	0.000	0.000	0.000	2.470E-02	2.102E 00	3.355E-03	0.000	0.000
1.836E 01	1.405E 00	0.000	-4.674E 01	0.000	0.000	0.000	1.634E 02	2.102E 00	3.355E-03	0.000	0.000
3.070E 01	3.195E 00	0.000	-2.332E 02	0.000	0.000	0.000	5.053E 02	4.780E 00	7.630E-03	0.000	0.000
3.508E 01	4.257E 00	0.000	-4.747E 02	0.000	0.000	0.000	6.804E 02	6.368E 00	1.017E-02	0.000	0.000
3.526E 01	4.767E 00	6.068E 00	-5.498E 02	0.000	0.000	0.000	6.883E 02	7.132E 00	1.138E-02	9.077E 00	1.449E-02
3.526E 01	4.785E 00	6.051E 00	-5.499E 02	0.000	0.000	0.000	6.886E 02	7.158E 00	1.143E-02	9.053E 00	1.445E-02
3.555E 01	5.600E 00	5.269E 00	-5.599E 02	0.000	0.000	0.000	7.172E 02	8.378E 00	1.337E-02	7.882E 00	1.258E-02
3.593E 01	5.548E 00	4.225E 00	-5.820E 02	-2.821E 02	-2.821E 02	0.000	7.559E 02	8.300E 00	1.325E-02	6.321E 00	1.009E-02
3.606E 01	5.530E 00	5.102E 00	-5.899E 02	-2.842E 02	-2.842E 02	0.000	7.691E 02	8.273E 00	1.321E-02	7.633E 00	1.218E-02
3.648E 01	4.877E 00	7.950E 00	-6.065E 02	-2.911E 02	-2.911E 02	0.000	8.127E 02	7.297E 00	1.165E-02	1.189E 01	1.899E-02
3.701E 01	5.752E 00	1.154E 01	-6.240E 02	-3.330E 02	-3.003E 02	-3.269E 01	8.687E 02	8.606E 00	1.374E-02	1.727E 01	2.757E-02
3.739E 01	7.082E 00	1.412E 01	-6.418E 02	-3.536E 02	-3.072E 02	-4.639E 01	9.096E 02	1.059E 01	1.691E-02	2.113E 01	3.373E-02
3.803E 01	9.315E 00	1.610E 01	-6.927E 02	-3.882E 02	-3.194E 02	-6.888E 01	9.795E 02	1.394E 01	2.224E-02	2.409E 01	3.845E-02
3.841E 01	1.437E 01	1.727E 01	-7.320E 02	-4.095E 02	-3.274E 02	-8.220E 01	1.022E 03	2.150E 01	3.432E-02	2.584E 01	4.125E-02
3.875E 01	1.888E 01	1.877E 01	-7.767E 02	-4.293E 02	-3.353E 02	-9.402E 01	1.060E 03	2.825E 01	4.509E-02	2.809E 01	4.483E-02
3.888E 01	2.062E 01	1.935E 01	-7.935E 02	-4.371E 02	-3.385E 02	-9.856E 01	1.075E 03	3.085E 01	4.924E-02	2.895E 01	4.621E-02
3.901E 01	2.234E 01	2.057E 01	-8.073E 02	-4.450E 02	-3.419E 02	-1.031E 02	1.090E 03	3.342E 01	5.334E-02	3.078E 01	4.913E-02
3.939E 01	2.115E 01	2.417E 01	-8.366E 02	-4.688E 02	-3.526E 02	-1.162E 02	1.134E 03	3.165E 01	5.051E-02	3.617E 01	5.773E-02
3.950E 01	2.081E 01	1.999E 01	-8.418E 02	-4.758E 02	-3.559E 02	-1.200E 02	1.147E 03	3.114E 01	4.970E-02	2.990E 01	4.773E-02
3.988E 01	1.992E 01	5.400E 00	-8.707E 02	-5.010E 02	-3.681E 02	-1.329E 02	1.191E 03	2.979E 01	4.756E-02	8.079E 00	1.290E-02
4.000E 01	1.963E 01	5.419E 00	-8.835E 02	-5.092E 02	-3.723E 02	-1.369E 02	1.205E 03	2.937E 01	4.689E-02	8.107E 00	1.294E-02
4.040E 01	2.352E 01	5.482E 00	-9.274E 02	-5.369E 02	-3.869E 02	-1.501E 02	1.252E 03	3.519E 01	5.616E-02	8.202E 00	1.309E-02
4.041E 01	2.362E 01	5.484E 00	-9.284E 02	-5.377E 02	-3.872E 02	-1.504E 02	1.253E 03	3.533E 01	5.640E-02	8.204E 00	1.310E-02
4.138E 01	3.299E 01	5.637E 00	-1.055E 03	-6.156E 02	-4.273E 02	-1.883E 02	1.367E 03	4.936E 01	7.879E-02	8.433E 00	1.346E-02
4.144E 01	3.362E 01	5.647E 00	-1.064E 03	-6.215E 02	-4.302E 02	-1.912E 02	1.375E 03	5.030E 01	8.030E-02	8.448E 00	1.349E-02
4.150E 01	3.420E 01	5.921E 00	-1.073E 03	-6.269E 02	-4.330E 02	-1.940E 02	1.382E 03	5.116E 01	8.167E-02	8.859E 00	1.414E-02
4.246E 01	1.976E 01	1.036E 01	-1.154E 03	-7.194E 02	-4.796E 02	-2.399E 02	1.497E 03	2.957E 01	4.719E-02	1.551E 01	2.475E-02
4.416E 01	2.900E 01	1.823E 01	-1.204E 03	-8.905E 02	-5.625E 02	-3.280E 02	1.703E 03	4.339E 01	6.926E-02	2.728E 01	4.354E-02
4.431E 01	2.981E 01	1.850E 01	-1.210E 03	-9.054E 02	-5.695E 02	-3.360E 02	1.721E 03	4.460E 01	7.120E-02	2.768E 01	4.418E-02
4.480E 01	3.247E 01	1.937E 01	-1.232E 03	-9.519E 02	-5.920E 02	-3.600E 02	1.780E 03	4.858E 01	7.755E-02	2.898E 01	4.626E-02
4.488E 01	3.199E 01	1.951E 01	-1.236E 03	-9.588E 02	-5.954E 02	-3.634E 02	1.790E 03	4.786E 01	7.640E-02	2.918E 01	4.658E-02
4.626E 01	2.316E 01	2.197E 01	-1.231E 03	-1.076E 03	-6.577E 02	-4.184E 02	1.960E 03	3.465E 01	5.531E-02	3.287E 01	5.247E-02
4.731E 01	1.646E 01	2.384E 01	-1.168E 03	-1.160E 03	-7.046E 02	-4.551E 02	2.090E 03	2.463E 01	3.931E-02	3.566E 01	5.693E-02
4.740E 01	1.581E 01	2.400E 01	-1.161E 03	-1.167E 03	-7.086E 02	-4.583E 02	2.101E 03	2.366E 01	3.776E-02	3.591E 01	5.731E-02
4.811E 01	1.072E 01	1.932E 01	-1.100E 03	-1.221E 03	-7.401E 02	-4.806E 02	2.190E 03	1.605E 01	2.561E-02	2.891E 01	4.615E-02
4.885E 01	1.444E 01	1.444E 01	-1.039E 03	-1.271E 03	-7.728E 02	-4.986E 02	2.282E 03	2.161E 01	3.449E-02	2.161E 01	3.449E-02
4.938E 01	1.095E 01	1.095E 01	-1.003E 03	-1.304E 03	-7.961E 02	-5.082E 02	2.349E 03	1.638E 01	2.615E-02	1.638E 01	2.615E-02
5.079E 01	1.044E 01	1.044E 01	-9.244E 02	-1.397E 03	-8.578E 02	-5.395E 02	2.526E 03	1.562E 01	2.494E-02	1.562E 01	2.494E-02
5.289E 01	2.220E 01	2.220E 01	-7.447E 02	-1.612E 03	-9.486E 02	-6.637E 02	2.793E 03	3.321E 01	5.301E-02	3.321E 01	5.301E-02
5.339E 01	2.560E 01	2.560E 01	-6.826E 02	-1.682E 03	-9.700E 02	-7.117E 02	2.856E 03	3.830E 01	6.113E-02	3.830E 01	6.113E-02
5.413E 01	2.611E 01	2.611E 01	-5.838E 02	-1.787E 03	-1.002E 03	-7.853E 02	2.951E 03	3.907E 01	6.236E-02	3.907E 01	6.236E-02
5.414E 01	2.612E 01	2.612E 01	-5.825E 02	-1.788E 03	-1.002E 03	-7.863E 02	2.952E 03	3.908E 01	6.238E-02	3.908E 01	6.238E-02
5.490E 01	2.665E 01	2.665E 01	-4.802E 02	-1.891E 03	-1.034E 03	-8.568E 02	3.050E 03	3.987E 01	6.364E-02	3.987E 01	6.364E-02
5.576E 01	2.728E 01	2.728E 01	-3.639E 02	-2.001E 03	-1.071E 03	-9.303E 02	3.160E 03	4.081E 01	6.514E-02	4.081E 01	6.514E-02
5.632E 01	2.769E 01	2.769E 01	1.388E 02	-2.066E 03	-1.092E 03	-9.744E 02	3.208E 03	4.142E 01	6.612E-02	4.142E 01	6.612E-02
5.633E 01	2.769E 01	2.769E 01	1.407E 02	-2.067E 03	-1.092E 03	-9.751E 02	3.209E 03	4.143E 01	6.613E-02	4.143E 01	6.613E-02
5.638E 01	2.705E 01	2.773E 01	1.486E 02	-2.073E 03	-1.094E 03	-9.793E 02	3.216E 03	4.047E 01	6.460E-02	4.149E 01	6.623E-02
5.652E 01	2.705E 01	2.784E 01	1.667E 02	-2.088E 03	-1.098E 03	-9.899E 02	3.234E 03	4.047E 01	6.460E-02	4.164E 01	6.647E-02
5.660E 01	2.789E 01	2.789E 01	1.779E 02	-2.097E 03	-1.101E 03	-9.959E 02	3.244E 03	4.173E 01	6.661E-02	4.173E 01	6.661E-02
5.688E 01	2.810E 01	2.810E 01	2.144E 02	-2.127E 03	-1.110E 03	-1.017E 03	3.280E 03	4.204E 01	6.710E-02	4.204E 01	6.710E-02
5.711E 01	2.821E 01	2.821E 01	2.418E 02	-2.151E 03	-1.118E 03	-1.033E 03	3.309E 03	4.220E 01	6.736E-02	4.220E 01	6.736E-02
5.783E 01	2.855E 01	2.855E 01	3.187E 02	-2.226E 03	-1.141E 03	-1.084E 03	3.402E 03	4.271E 01	6.818E-02	4.271E 01	6.818E-02
5.885E 01	2.857E 01	2.857E 01	3.849E 02	-2.324E 03	-1.174E 03	-1.151E 03	3.532E 03	4.275E 01	6.824E-02	4.275E 01	6.824E-02
6.086E 01	2.775E 01	2.775E 01	3.915E 02	-2.507E 03	-1.238E 03	-1.269E 03	3.790E 03	4.152E 01	6.627E-02	4.152E 01	6.627E-02
6.228E 01	2.730E 01	2.730E 01	3.915E 02	-2.636E 03	-1.289E 03	-1.347E 03	3.972E 03	4.084E 01	6.519E-02	4.084E 01	6.519E-02
6.474E 01	2.154E 01	2.154E 01	3.915E 02	-2.886E 03	-1.396E 03	-1.489E 03	4.289E 03	3.222E 01	5.144E-02	3.222E 01	5.144E-02

READING = 0096 BLOCK = 65 TIME = 180.340 MACH 5.2 PT = 418.749 TT = 2241.2

XABS	P-IB	P-OB	PDA	QOX	W-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.512E 01	2.037E 01	2.066E 01	3.915E 02	-2.927E 03	-1.415E 03	-1.513E 03	4.337E 03	3.048E 01	4.866E-02	3.091E 01	4.934E-02
6.516E 01	2.037E 01	2.057E 01	3.915E 02	-2.932E 03	-1.417E 03	-1.515E 03	4.342E 03	3.046E 01	4.866E-02	3.077E 01	4.912E-02
6.536E 01	1.919E 01	2.010E 01	3.915E 02	-2.953E 03	-1.427E 03	-1.527E 03	4.366E 03	2.871E 01	4.582E-02	3.007E 01	4.800E-02
6.702E 01	9.337E 00	4.175E 00	5.357E 02	-3.097E 03	-1.495E 03	-1.602E 03	4.583E 03	1.397E 01	2.230E-02	6.246E 00	9.970E-03
6.769E 01	7.068E 00	8.115E 00	6.811E 02	-3.139E 03	-1.516E 03	-1.623E 03	4.665E 03	1.057E 01	1.688E-02	1.214E 01	1.938E-02
6.846E 01	4.460E 00	6.332E 00	8.590E 02	-3.183E 03	-1.536E 03	-1.647E 03	4.760E 03	6.672E 00	1.065E-02	9.473E 00	1.512E-02
6.918E 01	3.716E 00	4.665E 00	9.819E 02	-3.223E 03	-1.551E 03	-1.672E 03	4.848E 03	5.559E 00	8.873E-03	6.979E 00	1.114E-02
6.979E 01	3.085E 00	3.246E 00	1.062E 03	-3.257E 03	-1.564E 03	-1.693E 03	4.922E 03	4.615E 00	7.367E-03	4.856E 00	7.751E-03
7.074E 01	2.414E 00	1.035E 00	1.142E 03	-3.307E 03	-1.581E 03	-1.726E 03	5.036E 03	3.611E 00	5.764E-03	1.548E 00	2.472E-03
7.117E 01	2.110E 00	1.276E 00	1.168E 03	-3.328E 03	-1.588E 03	-1.740E 03	5.088E 03	3.157E 00	5.039E-03	1.909E 00	3.048E-03
7.270E 01	1.336E 00	2.135E 00	1.250E 03	-3.385E 03	-1.610E 03	-1.775E 03	5.273E 03	1.999E 00	3.190E-03	3.194E 00	5.099E-03
7.285E 01	1.260E 00	1.878E 00	1.257E 03	-3.389E 03	-1.611E 03	-1.778E 03	5.290E 03	1.885E 00	3.009E-03	2.810E 00	4.486E-03
7.360E 01	1.453E 00	5.950E-01	1.301E 03	-3.412E 03	-1.620E 03	-1.792E 03	5.374E 03	2.174E 00	3.470E-03	8.901E-01	1.421E-03
7.360E 01	1.454E 00	5.881E-01	1.302E 03	-3.412E 03	-1.620E 03	-1.792E 03	5.375E 03	2.175E 00	3.472E-03	8.799E-01	1.405E-03
7.493E 01	1.795E 00	0.000	1.336E 03	-3.455E 03	-1.633E 03	-1.822E 03	5.426E 03	2.685E 00	4.287E-03	0.000	0.000
7.778E 01	1.910E 00	0.000	1.410E 03	-3.419E 03	-1.654E 03	-1.765E 03	5.525E 03	2.857E 00	4.561E-03	0.000	0.000
8.168E 01	1.285E 00	0.000	1.478E 03	-3.436E 03	-1.671E 03	-1.765E 03	5.630E 03	1.922E 00	3.069E-03	0.000	0.000
8.449E 01	1.125E 00	0.000	1.505E 03	-3.460E 03	-1.685E 03	-1.765E 03	5.684E 03	1.683E 00	2.687E-03	0.000	0.000
8.735E 01	1.745E 00	0.000	1.540E 03	-3.475E 03	-1.710E 03	-1.765E 03	5.707E 03	2.611E 00	4.167E-03	0.000	0.000
8.736E 01	1.746E 00	0.000	1.540E 03	-3.475E 03	-1.710E 03	-1.765E 03	5.707E 03	2.613E 00	4.170E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.257E 02	1.257E 02	2.286E-03	4.965E-02
4.041E 01	1.695E-01	1.258E 02	2.308E-03	5.508E-02
4.138E 01	1.603E 01	1.419E 02	2.431E-03	5.891E-02
4.144E 01	1.068E 00	1.429E 02	2.439E-03	5.920E-02
4.150E 01	9.766E-01	1.439E 02	2.447E-03	5.949E-02
4.246E 01	1.547E 01	1.594E 02	2.524E-03	6.130E-02
4.416E 01	2.616E 01	1.855E 02	2.576E-03	6.052E-02
4.431E 01	2.212E 00	1.878E 02	2.583E-03	6.069E-02
4.480E 01	7.222E 00	1.950E 02	2.610E-03	6.129E-02
4.488E 01	1.103E 00	1.961E 02	2.615E-03	6.131E-02
4.626E 01	1.969E 01	2.158E 02	2.625E-03	5.802E-02
4.731E 01	1.432E 01	2.301E 02	2.571E-03	5.248E-02
4.740E 01	1.206E 00	2.313E 02	2.565E-03	5.202E-02
4.811E 01	9.325E 00	2.406E 02	2.518E-03	4.748E-02
4.885E 01	9.238E 00	2.499E 02	2.470E-03	4.212E-02
4.938E 01	6.209E 00	2.561E 02	2.443E-03	3.881E-02
5.079E 01	1.498E 01	2.710E 02	2.365E-03	3.174E-02
5.289E 01	1.793E 01	2.890E 02	2.436E-03	3.824E-02
5.339E 01	3.423E 00	2.924E 02	2.506E-03	3.930E-02
5.413E 01	4.955E 00	2.973E 02	2.845E-03	3.541E-02
5.414E 01	6.886E-02	2.974E 02	2.899E-03	3.462E-02
5.490E 01	5.093E 00	3.025E 02	2.885E-03	3.449E-02
5.576E 01	5.391E 00	3.079E 02	2.939E-03	3.335E-02
5.632E 01	2.091E 00	3.100E 02	3.097E-03	2.991E-02
5.633E 01	5.017E-02	3.100E 02	3.109E-03	2.974E-02
5.638E 01	2.785E-01	3.103E 02	3.103E-03	2.976E-02
5.652E 01	7.024E-01	3.110E 02	3.110E-03	2.962E-02
5.660E 01	4.093E-01	3.114E 02	3.179E-03	2.895E-02
5.688E 01	1.430E 00	3.129E 02	3.104E-03	3.000E-02
5.711E 01	1.143E 00	3.140E 02	3.110E-03	2.995E-02
5.783E 01	3.641E 00	3.176E 02	3.109E-03	2.988E-02
5.885E 01	5.106E 00	3.227E 02	3.121E-03	2.980E-02
6.086E 01	1.057E 01	3.333E 02	3.109E-03	3.021E-02
6.228E 01	8.001E 00	3.413E 02	3.093E-03	3.057E-02
6.474E 01	1.556E 01	3.737E 02	3.079E-03	3.008E-02
6.512E 01	2.593E 00	3.763E 02	3.064E-03	2.962E-02
6.516E 01	2.781E-01	3.766E 02	3.063E-03	2.959E-02
6.536E 01	1.398E 00	3.780E 02	3.054E-03	2.919E-02
6.702E 01	1.079E 01	3.888E 02	2.844E-03	1.627E-02
6.769E 01	3.796E 00	3.925E 02	2.865E-03	1.756E-02
6.846E 01	4.198E 00	3.967E 02	2.805E-03	1.398E-02
6.918E 01	3.401E 00	4.001E 02	2.758E-03	1.171E-02
6.979E 01	2.499E 00	4.026E 02	2.710E-03	9.563E-03
7.074E 01	3.032E 00	4.057E 02	2.608E-03	6.079E-03
7.117E 01	1.133E 00	4.068E 02	2.605E-03	5.994E-03
7.270E 01	4.023E 00	4.108E 02	2.611E-03	6.106E-03
7.285E 01	3.678E-01	4.112E 02	2.594E-03	5.653E-03
7.360E 01	1.535E 00	4.127E 02	2.519E-03	4.059E-03
7.360E 01	2.544E-03	4.127E 02	2.519E-03	4.050E-03
7.493E 01	9.848E-01	4.137E 02	2.607E-03	6.240E-03
7.778E 01	2.235E 00	4.160E 02	2.606E-03	6.509E-03
8.168E 01	2.154E 00	4.181E 02	2.525E-03	4.776E-03
8.449E 01	9.382E-01	4.191E 02	2.492E-03	4.287E-03
8.735E 01	4.304E-01	4.195E 02	2.554E-03	5.904E-03
8.736E 01	0.000	4.195E 02	2.554E-03	5.908E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	991.	(LBF)
MEASURED THRUST	1334.	(LBF)
CALCULATED SPECIFIC IMPULSE	2335.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3145.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.3236	
MEASURED THRUST COEFFICIENT	0.4358	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6306.	(LBF)
NET THRUST	1111.	(LBF)
SPECIFIC IMPULSE	2618.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.3628	

MOMENTUM AND FORCES

INLET FRICTION DRAG	125.7	(LBF)
INLET MOMENTUM CHANGE	******	(LBF)
COMBUSTOR FRICTION DRAG	215.6	(LBF)
COMBUSTOR STRUT DRAG	78.30	(LBF)
COMBUSTOR MOMENTUM CHANGE	995.	(LBF)
NOZZLE FRICTION DRAG	61.35	(LBF)
NOZZLE STRUT DRAG	38.61	(LBF)
NOZZLE MOMENTUM CHANGE	1049.	(LBF)
NOZZLE PRESSURE INTEGRAL	1148.	(LBF)
EXTERNAL FRICTION DRAG	43.50	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1268.	(LBF)
TOTAL EXTERNAL DRAG	-1311.	(LBF)
TOTAL STRUT DRAG	116.90	(LBF)
CAVITY FORCE	-1399.	(LBF)
CALCULATED LOAD CELL FORCE	-1720.	(LBF)
MEASURED LOAD CELL FORCE	-1374.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-143.7, 0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3807	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.265	(IN)
NOZZLE SHROUD TRAILING EDGE	73.605	(IN)
NOZZLE PLUG TRAILING EDGE	87.357	(IN)
STRUT LEADING EDGE	56.521	(IN)
STRUT TRAILING EDGE	65.121	(IN)
COMBUSTOR EXIT	62.281	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.8123	
ADDITIVE DRAG COEFFICIENT	0.0161	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2751	
DELTA PT2	0.1474	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4096	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2802	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8913	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9146	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9167	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8887	
ENTHALPY AT PO - SUPERSONIC	-11.28	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	2.25	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0130
EQUIVALENCE RATIO	0.434
COMBUSTOR EFFICIENCY	0.921
TOTAL PRESSURE RATIO	0.2642
COMBUSTOR EFFECTIVENESS	0.8473
INJECTOR DISCHARGE COEFFICIENTS	0.7164, 0.6646,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9299
NOZZLE COEFFICIENT - CT	0.8631
PROCESS EFFICIENCY	0.8511
KINETIC ENERGY EFFICIENCY	0.8428

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.366	
1C	44.300	
2A	48.841	
2C	46.250	
3A	54.131	E
3B	56.316	E
4	44.866	

Reading 96

t = 244.24 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	O	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	299.250	2925	648.1(774)	1.2960	28.859	2555											
0.000	0.384	509	-6.8(123)	1.3989	28.858	1107	5.171	5724	1.883	0.08075	16.796	0.8121	3068	7.183	182.7		
SPIKE TIP NS		2	0 7														
0.600	16.087	2925	648.1(774)	1.2959	28.858	2555											
0.600	15.020	2879	634.3(761)	1.2973	28.858	2537	0.327	829	2.085	0.08075	16.796	0.8121	3557	1.040	211.8		
WIND TUNNEL		3	0 0														
0.000	299.250	2925	648.1(774)	1.2960	28.859	2555											
0.000	0.498	548	2.7(132)	1.3985	28.858	1149	4.947	5683	1.883	0.09656	20.085	0.8121	3651	8.528	181.8		
SPIKE TIP NS		4	0 0														
0.600	16.087	2925	648.1(774)	1.2959	28.858	2555											
0.600	14.497	2856	627.3(754)	1.2961	28.859	2527	0.403	1019	2.085	0.09656	20.085	0.8121	3651	1.529	181.8		
INLET THROAT		5	0 3														
40.400	122.874	2841	622.8(750)	1.2986	28.859	2521											
40.400	12.612	1635	279.0(408)	1.3416	28.858	1944	2.133	4148	1.936	0.59734	20.085	0.1098	2944	46.042	146.6		
INLET UPNRBK		6	0 4														
40.400	122.874	2841	622.8(750)	1.2986	28.859	2521											
40.400	14.586	1697	295.7(425)	1.3387	28.858	1978	2.045	4046	1.936	0.64939	20.085	0.1208	2977	40.829	148.2		
INLET DNNRBK		7	0 4														
40.400	83.450	2841	622.8(750)	1.2986	28.859	2521											
40.400	68.404	2713	584.8(712)	1.3026	28.859	2468	0.559	1379	1.962	0.64939	20.085	0.1208	2977	13.919	148.2		
COMBUSTOR	0	8	1 5														
40.410	125.679	2841	622.8(750)	1.2986	28.859	2521											
40.410	16.977	1753	311.0(440)	1.3361	28.858	2009	1.966	3950	1.934	0.71423	20.085	0.1098	2943	43.838	146.5		
COMBUSTOR	0	9	2 4														
41.378	104.376	2827	618.6(745)	1.2990	28.859	2515											
41.378	19.891	1901	351.7(481)	1.3303	28.859	2087	1.751	3655	1.946	0.71437	20.085	0.1098	2841	40.574	141.4		
COMBUSTOR	0	10	3 4														
41.443	103.121	2826	618.3(745)	1.2991	28.859	2515											
41.443	20.133	1911	354.6(484)	1.3299	28.859	2093											
							1.736	3632	1.946	0.71460	20.085	0.1097	2833	40.337	141.1		
COMBUSTOR	0	11	4 4														
41.500	102.068	2825	618.0(745)	1.2991	28.859	2514											
41.500	20.371	1921	357.3(487)	1.3295	28.859	2098	1.722	3612	1.947	0.71528	20.085	0.1096	2827	40.146	140.7		
COMBUSTOR	0	12	5 5														
42.460	90.455	2808	613.1(740)	1.2996	28.859	2508											
42.460	22.635	2019	384.6(514)	1.3259	28.859	2147	1.575	3382	1.954	0.70819	20.085	0.1107	2753	37.217	137.1		
COMBUSTOR	0	13	6 5														
44.163	79.973	2778	603.9(731)	1.3006	28.859	2495											
44.163	24.071	2087	403.9(533)	1.3234	28.859	2182	1.450	3163	1.959	0.68126	20.085	0.1151	2685	33.492	133.7		
COMBUSTOR	0	14	7 5														
44.310	79.245	2775	603.1(730)	1.3007	28.859	2494											
44.310	24.330	2095	406.2(535)	1.3232	28.859	2186	1.436	3139	1.959	0.68069	20.085	0.1152	2678	33.209	133.3		
COMBUSTOR	0	15	8 5														
44.800	76.755	2766	600.6(728)	1.3009	28.859	2490											
44.800	25.319	2126	414.7(544)	1.3221	28.859	2200	1.386	3050	1.960	0.67850	20.085	0.1156	2654	32.161	132.1		
COMBUSTOR	0	16	9 5														
44.878	76.343	2765	600.2(727)	1.3010	28.859	2490											
44.878	25.486	2131	416.1(545)	1.3219	28.859	2203	1.378	3035	1.961	0.67795	20.085	0.1157	2650	31.976	131.9		
COMBUSTOR	0	17	10 5														
46.260	71.456	2744	593.9(721)	1.3017	28.859	2481											
46.260	24.103	2119	412.8(542)	1.3223	28.859	2197	1.370	3010	1.963	0.63956	20.085	0.1226	2636	29.921	131.3		
COMBUSTOR	0	18	11 4														
47.310	70.753	2729	589.5(717)	1.3021	28.859	2474											
47.310	20.135	2021	385.2(514)	1.3258	28.859	2149	1.488	3197	1.962	0.59489	20.085	0.1318	2676	29.556	133.2		

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	*	A/AC	MOPTP	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	4														
47.403	70.875	2728	589.1(	717)	1.3022	28.859	2474											
47.403	19.804	2011	382.4(	512)	1.3262	28.859	2143	1.501	3216	1.962	0.59152	20.085	0.1326	2660	29.564	133.4		
COMBUSTOR	0	20	13	4														
48.110	70.890	2719	586.5(	714)	1.3025	28.859	2470											
48.110	16.990	1929	359.7(	489)	1.3292	28.859	2102	1.603	3369	1.961	0.55400	20.085	0.1415	2719	29.002	135.4		
COMBUSTOR	0	21	14	4														
48.853	69.700	2711	584.1(	712)	1.3027	28.859	2467											
48.853	14.184	1847	336.8(	466)	1.3323	28.858	2059	1.709	3518	1.961	0.50461	20.085	0.1554	2761	27.586	137.4		
COMBUSTOR	0	22	15	4														
49.383	68.402	2706	582.7(	710)	1.3029	28.859	2465											
49.383	12.623	1799	323.5(	453)	1.3342	28.858	2033	1.771	3601	1.962	0.47193	20.085	0.1662	2785	26.409	138.7		
COMBUSTOR	0	23	16	4														
50.793	64.899	2695	579.5(	707)	1.3032	28.859	2460											
50.793	9.723	1699	296.3(	426)	1.3386	28.858	1980											
								1.901	3764	1.964	0.40222	20.085	0.1950	2835	23.527	141.2		
COMBUSTOR	0	24	17	21														
52.893	55.704	2663	572.2(	704)	1.3044	28.580	2458											
52.893	5.000	1470	234.0(	368)	1.3507	28.579	1859	2.214	4114	1.989	0.33154	20.199	0.2379	2888	21.198	143.0	0.03	0.07
COMBUSTOR	0	25	18	21														
53.393	53.734	2651	571.4(	701)	1.3049	28.569	2454											
53.393	4.217	1412	221.2(	352)	1.3541	28.569	1824	2.295	4186	1.991	0.31799	20.199	0.2480	2896	20.688	143.4	0.03	0.01
COMBUSTOR	0	26	19	21														
54.143	52.013	2646	570.3(	699)	1.3051	28.568	2452											
54.143	3.836	1387	214.7(	345)	1.3556	28.568	1809	2.332	4218	1.992	0.29975	20.199	0.2631	2907	19.649	143.9	0.03	0.00
COMBUSTOR	0	27	20	21														
54.903	50.060	2642	569.3(	698)	1.3052	28.568	2450											
54.903	3.450	1360	207.8(	338)	1.3572	28.567	1792	2.373	4253	1.995	0.28348	20.199	0.2782	2916	18.736	144.4	0.03	0.00
COMBUSTOR	0	28	21	21														
55.760	45.085	2689	568.2(	711)	1.3030	28.624	2467											
55.760	3.169	1395	202.4(	347)	1.3546	28.624	1812	2.361	4278	2.006	0.26733	20.199	0.2950	2925	17.773	144.8	0.03	0.35
COMBUSTOR	0	29	22	21														
56.328	43.803	2644	567.5(	699)	1.3050	28.576	2450											
56.328	2.982	1357	204.7(	337)	1.3573	28.576	1790	2.380	4261	2.004	0.21437	20.199	0.3679	2956	14.195	146.3	0.03	0.05
COMBUSTOR	0	30	23	21														
56.383	40.779	2637	567.5(	697)	1.3054	28.569	2448											
56.383	2.207	1273	184.6(	315)	1.3625	28.569	1737	2.519	4377	2.008	0.21373	20.199	0.3690	2957	14.539	146.4	0.03	0.01
COMBUSTOR	0	31	24	21														
56.523	40.699	2636	567.4(	696)	1.3054	28.568	2447											
56.523	2.184	1269	183.9(	315)	1.3627	28.568	1735	2.525	4380	2.008	0.21220	20.199	0.3717	2958	14.445	146.4	0.03	0.00
COMBUSTOR	0	32	25	21														
56.603	44.437	2636	567.3(	696)	1.3054	28.568	2447											
56.603	2.692	1336	201.4(	332)	1.3587	28.567	1777	2.408	4279	2.002	0.21461	20.199	0.3675	2959	14.271	146.5	0.03	0.00
COMBUSTOR	0	33	26	21														
56.883	38.366	2739	567.0(	725)	1.3006	28.686	2485											
56.883	2.800	1440	198.4(	359)	1.3515	28.686	1837	2.338	4295	2.020	0.21390	20.199	0.3687	2961	14.277	146.6	0.03	0.73
COMBUSTOR	0	34	27	21														
57.109	43.578	2650	566.8(	700)	1.3047	28.585	2452											
57.109	2.812	1341	198.2(	333)	1.3582	28.585	1780	2.413	4295	2.005	0.21350	20.199	0.3694	2962	14.249	146.7	0.03	0.11
COMBUSTOR	0	35	28	21														
57.833	44.610	2634	566.2(	696)	1.3054	28.570	2446											
57.833	2.850	1328	198.8(	330)	1.3591	28.570	1773	2.419	4288	2.002	0.21015	20.199	0.3783	2966	14.003	146.8	0.03	0.02
COMBUSTOR	0	36	29	21														
58.853	43.882	2630	565.4(	695)	1.3056	28.568	2444											
58.853	2.587	1298	191.3(	322)	1.3610	28.568	1753	2.467	4326	2.002	0.20881	20.199	0.3777	2966	14.039	146.9	0.03	0.00
COMBUSTOR	0	37	30	21														
60.863	34.867	2626	564.3(	693)	1.3058	28.568	2443											
60.863	1.462	1183	161.5(	292)	1.3681	28.567	1678	2.675	4490	2.018	0.21608	20.199	0.3650	2955	15.076	146.3	0.03	0.00

READING = 0096 BLOCK = 156 TIME = 244.240 MACH 5.2 PT = 299.250 TT = 2924.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
62.283	37.078	2728	563.8(722)	1.3010	28.686	2480											
62.283	2.494	1404	188.7(349)	1.3536	28.686	1815	2.387	4333	2.021	0.22193	20.199	0.3553	2947	14.943	145.9	0.03	0.73
COMBUSTOR	REGEN	39	32 5														
62.283	37.078	3022	652.9(809)	1.2913	28.686	2601											
62.283	5.918	1958	340.2(500)	1.3273	28.686	2122	1.864	3955	2.052	0.22193	20.199	0.3553	3022	13.642	149.6	0.03	0.73
NOZZLE AE		40	33 4														
87.359	37.078	2728	563.8(720)	1.3010	28.686	2480											
87.359	0.354	827	40.9(201)	1.3882	28.686	1410	3.627	5115	2.021	0.04071	20.199	1.9371	3387	3.236	167.7	0.03	0.73
NOZZLE PO		41	34 4														
87.359	37.078	2728	563.8(720)	1.3010	28.686	2480											
87.359	0.498	909	61.5(222)	1.3838	28.686	1477	3.395	5013	2.022	0.05101	20.199	1.5459	3345	3.975	165.6	0.03	0.73
NOZZLE AE	REGEN	42	35 4														
87.359	37.078	3022	652.9(809)	1.2913	28.686	2601											
87.359	0.393	963	75.0(235)	1.3807	28.686	1518	3.542	5378	2.052	0.04071	20.199	1.9371	3571	3.402	176.8	0.03	0.73
NOZZLE PO	REGEN	43	36 4														
87.359	37.078	3022	652.9(809)	1.2913	28.686	2601											
87.359	0.498	1028	91.5(252)	1.3768	28.686	1567	3.383	5300	2.053	0.04768	20.199	1.6540	3539	3.928	175.2	0.03	0.73
FICTIVE	COMBUSTR	65	58 0														
62.283	122.874	2767	563.8(733)	1.2993	28.731	2494											
62.283	0.498	661	-11.0(160)	1.3948	28.730	1263	4.245	5363	1.901	0.07514	20.199	1.0496	3501	6.262	173.3	0.03	1.00
FICTIVE	NOZZLE	66	59 0														
87.359	28.287	2706	557.1(716)	1.3017	28.686	2471											
87.359	0.404	915	62.9(223)	1.3838	28.686	1481	3.387	4973	2.038	0.04071	20.199	1.9371	3322	3.146	164.5	0.03	0.73

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

XABS	P-IB	P-OF	PDA	DDX	W-IP	Q-OB	CAWALL	P-IB/PSO	P-IP/PTO	P-OB/PSO	P-CB/PTO
6.981E-01	1.080E 00	0.000	-3.931E-01	0.000	0.000	0.000	2.473E-02	2.167E 01	3.609E-03	0.000	0.000
1.836E 01	1.080E 00	0.000	-3.590E 01	0.000	0.000	0.000	1.634E 02	2.167E 00	3.609E-03	0.000	0.000
3.070E 01	2.300E 00	0.000	-1.729E 02	0.000	0.000	0.000	5.053E 02	4.615E 00	7.666E-03	0.000	0.000
3.508E 01	3.055E 00	0.000	-3.464E 02	0.000	0.000	0.000	6.804E 02	6.130E 00	1.021E-02	0.000	0.000
3.526E 01	3.426E 00	4.335E 00	-4.003E 02	0.000	0.000	0.000	6.884E 02	6.874E 00	1.145E-02	8.698E 00	1.449E-02
3.527E 01	3.438E 00	4.324E 00	-4.004E 02	0.000	0.000	0.000	6.887E 02	6.899E 00	1.149E-02	8.677E 00	1.445E-02
3.555E 01	4.020E 00	3.835E 00	-4.075E 02	0.000	0.000	0.000	7.171E 02	8.066E 00	1.343E-02	7.696E 00	1.282E-02
3.593E 01	3.915E 00	3.175E 00	-4.227E 02	-2.177E 02	-2.177E 02	0.000	7.960E 02	7.855E 00	1.308E-02	6.371E 00	1.061E-02
3.606E 01	3.880E 00	3.760E 00	-4.280E 02	-2.193E 02	-2.193E 02	0.000	7.490E 02	7.785E 00	1.297E-02	7.545E 00	1.257E-02
3.648E 01	3.482E 00	5.091E 00	-4.391E 02	-2.246E 02	-2.246E 02	0.000	8.126E 02	6.988E 00	1.164E-02	1.142E 01	1.902E-02
3.701E 01	4.132E 00	8.128E 00	-4.523E 02	-2.765E 02	-2.317E 02	-4.486E 01	8.686E 02	8.292E 00	1.381E-02	1.631E 01	2.716E-02
3.739E 01	5.053E 00	9.887E 00	-4.653E 02	-3.008E 02	-2.370E 02	-6.381E 01	9.097E 02	1.014E 01	1.688E-02	1.984E 01	3.304E-02
3.803E 01	6.585E 00	1.119E 01	-5.020E 02	-3.410E 02	-2.463E 02	-9.470E 01	9.793E 02	1.321E 01	2.201E-02	2.246E 01	3.740E-02
3.841E 01	1.007E 01	1.197E 01	-5.300E 02	-3.657E 02	-2.525E 02	-1.132E 02	1.022E 03	2.020E 01	3.364E-02	2.403E 01	4.002E-02
3.875E 01	1.313E 01	1.320E 01	-5.610E 02	-3.881E 02	-2.587E 02	-1.294E 02	1.060E 03	2.636E 01	4.389E-02	2.648E 01	4.409E-02
3.888E 01	1.434E 01	1.367E 01	-5.718E 02	-3.971E 02	-2.613E 02	-1.358E 02	1.075E 03	2.878E 01	4.793E-02	2.744E 01	4.570E-02
3.901E 01	1.550E 01	1.461E 01	-5.819E 02	-4.058E 02	-2.639E 02	-1.419E 02	1.090E 03	3.110E 01	5.180E-02	2.932E 01	4.883E-02
3.939E 01	1.495E 01	1.742E 01	-6.021E 02	-4.326E 02	-2.724E 02	-1.602E 02	1.134E 03	3.000E 01	4.997E-02	3.496E 01	5.823E-02
3.950E 01	1.480E 01	1.451E 01	-6.052E 02	-4.403E 02	-2.750E 02	-1.653E 02	1.146E 03	2.970E 01	4.946E-02	2.911E 01	4.847E-02
3.988E 01	1.427E 01	4.100E 00	-6.254E 02	-4.682E 02	-2.849E 02	-1.833E 02	1.191E 03	2.863E 01	4.767E-02	8.227E 00	1.370E-02
4.000E 01	1.410E 01	4.140E 00	-6.342E 02	-4.769E 02	-2.881E 02	-1.888E 02	1.205E 03	2.830E 01	4.713E-02	8.308E 00	1.384E-02
4.040E 01	1.695E 01	4.278E 00	-6.651E 02	-5.070E 02	-2.999E 02	-2.071E 02	1.252E 03	3.402E 01	5.665E-02	8.584E 00	1.430E-02
4.041E 01	1.702E 01	4.282E 00	-6.658E 02	-5.078E 02	-3.002E 02	-2.076E 02	1.253E 03	3.416E 01	5.689E-02	8.591E 00	1.431E-02
4.138E 01	2.392E 01	4.615E 00	-7.550E 02	-5.917E 02	-3.324E 02	-2.593E 02	1.367E 03	4.799E 01	7.992E-02	9.260E 00	1.542E-02
4.144E 01	2.438E 01	4.637E 00	-7.616E 02	-5.980E 02	-3.347E 02	-2.633E 02	1.375E 03	4.892E 01	8.147E-02	9.305E 00	1.550E-02
4.150E 01	2.479E 01	4.795E 00	-7.676E 02	-6.037E 02	-3.368E 02	-2.668E 02	1.382E 03	4.974E 01	8.283E-02	9.622E 00	1.603E-02
4.246E 01	1.567E 01	7.440E 00	-8.287E 02	-7.021E 02	-3.742E 02	-3.279E 02	1.497E 03	3.145E 01	5.238E-02	1.493E 01	2.486E-02
4.416E 01	2.171E 01	1.213E 01	-8.762E 02	-8.865E 02	-4.424E 02	-4.441E 02	1.703E 03	4.355E 01	7.253E-02	2.434E 01	4.054E-02
4.431E 01	2.223E 01	1.243E 01	-8.813E 02	-9.026E 02	-4.482E 02	-4.544E 02	1.721E 03	4.460E 01	7.428E-02	2.495E 01	4.155E-02
4.480E 01	2.396E 01	1.344E 01	-8.997E 02	-9.536E 02	-4.673E 02	-4.863E 02	1.780E 03	4.808E 01	8.008E-02	2.697E 01	4.491E-02
4.488E 01	2.359E 01	1.360E 01	-9.027E 02	-9.614E 02	-4.703E 02	-4.911E 02	1.790E 03	4.733E 01	7.882E-02	2.729E 01	4.545E-02
4.626E 01	1.691E 01	1.644E 01	-9.005E 02	-1.088E 03	-5.214E 02	-5.669E 02	1.960E 03	3.392E 01	5.649E-02	3.299E 01	5.494E-02
4.731E 01	1.183E 01	1.860E 01	-8.497E 02	-1.176E 03	-5.574E 02	-6.188E 02	2.090E 03	2.374E 01	3.954E-02	3.732E 01	6.215E-02
4.740E 01	1.186E 01	1.879E 01	-8.442E 02	-1.184E 03	-5.604E 02	-6.234E 02	2.101E 03	2.379E 01	3.962E-02	3.770E 01	6.278E-02
4.811E 01	1.204E 01	1.544E 01	-7.981E 02	-1.238E 03	-5.831E 02	-6.547E 02	2.189E 03	2.415E 01	4.023E-02	3.098E 01	5.159E-02
4.885E 01	1.192E 01	1.192E 01	-7.489E 02	-1.289E 03	-6.057E 02	-6.796E 02	2.282E 03	2.392E 01	3.984E-02	2.392E 01	3.984E-02
4.938E 01	9.412E 00	9.412E 00	-7.194E 02	-1.313E 03	-6.211E 02	-6.922E 02	2.349E 03	1.889E 01	3.145E-02	1.889E 01	3.145E-02
5.079E 01	7.406E 00	7.406E 00	-6.573E 02	-1.378E 03	-6.591E 02	-7.185E 02	2.526E 03	1.486E 01	2.475E-02	1.486E 01	2.475E-02
5.289E 01	5.000E 00	5.000E 00	-5.890E 02	-1.457E 03	-7.077E 02	-7.494E 02	2.793E 03	1.003E 01	1.671E-02	1.003E 01	1.671E-02
5.339E 01	4.217E 00	4.217E 00	-5.770E 02	-1.473E 03	-7.179E 02	-7.553E 02	2.856E 03	8.461E 00	1.409E-02	8.461E 00	1.409E-02
5.414E 01	3.836E 00	3.836E 00	-5.614E 02	-1.496E 03	-7.321E 02	-7.637E 02	2.952E 03	7.697E 00	1.282E-02	7.697E 00	1.282E-02
5.490E 01	3.450E 00	3.450E 00	-5.473E 02	-1.517E 03	-7.454E 02	-7.718E 02	3.050E 03	6.922E 00	1.153E-02	6.922E 00	1.153E-02
5.576E 01	3.169E 00	3.169E 00	-5.331E 02	-1.539E 03	-7.589E 02	-7.803E 02	3.160E 03	6.358E 00	1.059E-02	6.358E 00	1.059E-02
5.633E 01	2.982E 00	2.982E 00	-5.003E 02	-1.552E 03	-7.663E 02	-7.856E 02	3.209E 03	5.984E 00	9.966E-03	5.984E 00	9.966E-03
5.638E 01	1.450E 00	2.964E 00	-4.994E 02	-1.553E 03	-7.670E 02	-7.861E 02	3.216E 03	2.909E 00	4.845E-03	5.948E 00	9.905E-03
5.652E 01	1.450E 00	2.918E 00	-4.975E 02	-1.556E 03	-7.685E 02	-7.873E 02	3.234E 03	2.909E 00	4.845E-03	5.855E 00	9.752E-03
5.660E 01	2.892E 00	2.892E 00	-4.963E 02	-1.557E 03	-7.694E 02	-7.880E 02	3.244E 03	5.803E 00	9.664E-03	5.803E 00	9.664E-03
5.688E 01	2.800E 00	2.800E 00	-4.926E 02	-1.563E 03	-7.724E 02	-7.905E 02	3.280E 03	5.618E 00	9.357E-03	5.618E 00	9.357E-03
5.711E 01	2.812E 00	2.812E 00	-4.899E 02	-1.567E 03	-7.747E 02	-7.925E 02	3.309E 03	5.642E 00	9.396E-03	5.642E 00	9.396E-03
5.783E 01	2.850E 00	2.850E 00	-4.822E 02	-1.580E 03	-7.812E 02	-7.988E 02	3.402E 03	5.719E 00	9.524E-03	5.719E 00	9.524E-03
5.885E 01	2.587E 00	2.587E 00	-4.759E 02	-1.596E 03	-7.885E 02	-8.073E 02	3.532E 03	5.192E 00	8.647E-03	5.192E 00	8.647E-03
6.086E 01	1.462E 00	1.462E 00	-4.754E 02	-1.617E 03	-7.979E 02	-8.195E 02	3.790E 03	2.935E 00	4.887E-03	2.935E 00	4.887E-03
6.228E 01	2.494E 00	2.494E 00	-4.754E 02	-1.628E 03	-8.028E 02	-8.253E 02	3.972E 03	5.004E 00	8.333E-03	5.004E 00	8.333E-03
6.475E 01	3.559E 00	3.559E 00	-4.754E 02	-1.653E 03	-8.135E 02	-8.395E 02	4.289E 03	7.141E 00	1.189E-02	7.141E 00	1.189E-02
6.512E 01	2.625E 00	3.721E 00	-4.754E 02	-1.658E 03	-8.153E 02	-8.424E 02	4.337E 03	5.267E 00	8.772E-03	7.467E 00	1.244E-02
6.516E 01	2.625E 00	3.739E 00	-4.754E 02	-1.658E 03	-8.155E 02	-8.427E 02	4.342E 03	5.267E 00	8.772E-03	7.501E 00	1.249E-02

READING = 0096 BLOCK = 156 TIME = 244.240 MACH 5.2 PT = 299.250 TT = 2924.9

XABB	P-IB	P-OB	POA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.536E 01	2.696E 00	3.825E 00	-4.754E 02	-1.661E 03	-8.165E 02	-8.445E 02	4.368E 03	5.410E 00	9.010E-03	7.675E 00	1.278E-02
6.702E 01	3.287E 00	4.325E 00	-4.347E 02	-1.681E 03	-8.244E 02	-8.568E 02	4.583E 03	6.596E 00	1.099E-02	8.678E 00	1.445E-02
6.769E 01	2.502E 00	1.957E 00	-3.737E 02	-1.687E 03	-8.273E 02	-8.601E 02	4.665E 03	5.021E 00	8.362E-03	3.928E 00	6.541E-03
6.846E 01	1.600E 00	1.584E 00	-3.198E 02	-1.695E 03	-8.305E 02	-8.641E 02	4.760E 03	3.210E 00	5.347E-03	3.179E 00	5.294E-03
6.918E 01	1.565E 00	1.235E 00	-2.803E 02	-1.703E 03	-8.333E 02	-8.695E 02	4.848E 03	3.140E 00	5.229E-03	2.478E 00	4.127E-03
6.979E 01	1.535E 00	1.165E 00	-2.497E 02	-1.710E 03	-8.357E 02	-8.739E 02	4.922E 03	3.080E 00	5.129E-03	2.337E 00	3.892E-03
7.074E 01	1.170E 00	1.055E 00	-2.094E 02	-1.717E 03	-8.392E 02	-8.777E 02	5.036E 03	2.348E 00	3.910E-03	2.117E 00	3.525E-03
7.117E 01	1.005E 00	1.065E 00	-1.940E 02	-1.719E 03	-8.407E 02	-8.787E 02	5.088E 03	2.017E 00	3.358E-03	2.137E 00	3.558E-03
7.270E 01	6.270E-01	1.100E 00	-1.493E 02	-1.730E 03	-8.453E 02	-8.848E 02	5.273E 03	1.258E 00	2.095E-03	2.207E 00	3.676E-03
7.285E 01	5.900E-01	1.019E 00	-1.458E 02	-1.731E 03	-8.456E 02	-8.857E 02	5.290E 03	1.184E 00	1.972E-03	2.045E 00	3.406E-03
7.360E 01	5.071E-01	6.150E-01	-1.214E 02	-1.738E 03	-8.474E 02	-8.909E 02	5.374E 03	1.017E 00	1.694E-03	1.234E 00	2.055E-03
7.361E 01	5.066E-01	6.128E-01	-1.203E 02	-1.738E 03	-8.474E 02	-8.910E 02	5.375E 03	1.017E 00	1.693E-03	1.230E 00	2.048E-03
7.493E 01	3.600E-01	0.000	-1.111E 02	-1.752E 03	-8.499E 02	-9.020E 02	5.426E 03	7.223E-01	1.203E-03	0.000	0.000
7.778E 01	3.950E-01	0.000	-9.600E 01	-1.756E 03	-8.536E 02	-9.020E 02	5.525E 03	7.926E-01	1.320E-03	0.000	0.000
8.168E 01	3.550E-01	0.000	-7.997E 01	-1.758E 03	-8.562E 02	-9.020E 02	5.630E 03	7.123E-01	1.186E-03	0.000	0.000
8.449E 01	3.900E-01	0.000	-7.170E 01	-1.760E 03	-8.578E 02	-9.020E 02	5.684E 03	7.825E-01	1.303E-03	0.000	0.000
8.735E 01	3.750E-01	0.000	-6.247E 01	-1.763E 03	-8.609E 02	-9.020E 02	5.707E 03	7.524E-01	1.253E-03	0.000	0.000
8.736E 01	3.750E-01	0.000	-6.246E 01	-1.763E 03	-8.609E 02	-9.020E 02	5.707E 03	7.524E-01	1.253E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.017E 02	1.017E 02	2.593E-03	3.325E-02
4.041E 01	1.384E-01	1.018E 02	2.621E-03	4.058E-02
4.138E 01	1.297E 01	1.148E 02	2.749E-03	4.310E-02
4.144E 01	8.621E-01	1.156E 02	2.758E-03	4.329E-02
4.150E 01	7.628E-01	1.164E 02	2.766E-03	4.349E-02
4.246E 01	1.247E 01	1.289E 02	2.849E-03	4.468E-02
4.416E 01	2.100E 01	1.498E 02	2.916E-03	4.422E-02
4.431E 01	1.742E 00	1.516E 02	2.924E-03	4.433E-02
4.480E 01	5.742E 00	1.573E 02	2.953E-03	4.471E-02
4.488E 01	9.003E-01	1.582E 02	2.958E-03	4.477E-02
4.626E 01	1.558E 01	1.738E 02	2.969E-03	4.233E-02
4.731E 01	1.137E 01	1.852E 02	2.907E-03	3.828E-02
4.740E 01	9.892E-01	1.862E 02	2.900E-03	3.795E-02
4.811E 01	7.415E 00	1.936E 02	2.847E-03	3.468E-02
4.885E 01	7.412E 00	2.010E 02	2.791E-03	3.075E-02
4.938E 01	4.980E 00	2.060E 02	2.758E-03	2.830E-02
5.079E 01	1.206E 01	2.180E 02	2.683E-03	2.325E-02
5.289E 01	1.587E 01	2.339E 02	2.648E-03	1.408E-02
5.339E 01	3.487E 00	2.374E 02	2.576E-03	1.254E-02
5.414E 01	4.953E 00	2.424E 02	2.550E-03	1.161E-02
5.490E 01	4.749E 00	2.471E 02	2.533E-03	1.064E-02
5.576E 01	5.079E 00	2.522E 02	2.517E-03	9.894E-03
5.633E 01	1.994E 00	2.542E 02	2.516E-03	8.902E-03
5.638E 01	2.525E-01	2.544E 02	2.472E-03	7.200E-03
5.652E 01	6.356E-01	2.551E 02	2.463E-03	7.149E-03
5.660E 01	3.612E-01	2.554E 02	2.453E-03	8.809E-03
5.688E 01	1.247E 00	2.567E 02	2.444E-03	8.593E-03
5.711E 01	1.024E 00	2.577E 02	2.447E-03	8.386E-03
5.783E 01	3.266E 00	2.610E 02	2.446E-03	8.629E-03
5.885E 01	4.459E 00	2.654E 02	2.420E-03	8.043E-03
6.086E 01	9.165E 00	2.746E 02	2.462E-03	5.219E-03
6.228E 01	6.677E 00	2.813E 02	2.421E-03	7.828E-03
8.736E 01	1.572E 00	2.939E 02	2.495E-03	9.169E-03
6.475E 01	1.041E 01	3.043E 02	2.597E-03	9.801E-03
6.512E 01	1.375E 00	3.057E 02	2.571E-03	9.028E-03
6.516E 01	1.421E-01	3.058E 02	2.572E-03	9.045E-03
6.536E 01	7.150E-01	3.065E 02	2.575E-03	9.198E-03
6.702E 01	6.288E 00	3.128E 02	2.597E-03	1.022E-02
6.760E 01	2.158E 00	3.150E 02	2.491E-03	6.963E-03
6.846E 01	1.954E 00	3.169E 02	2.422E-03	5.419E-03
6.918E 01	1.570E 00	3.185E 02	2.392E-03	4.913E-03
6.979E 01	1.254E 00	3.197E 02	2.384E-03	4.777E-03
7.074E 01	1.805E 00	3.216E 02	2.345E-03	4.126E-03
7.117E 01	7.534E-01	3.223E 02	2.329E-03	3.904E-03
7.270E 01	2.458E 00	3.248E 02	2.289E-03	3.394E-03
7.285E 01	2.114E-01	3.250E 02	2.275E-03	3.217E-03
7.360E 01	9.032E-01	3.259E 02	2.208E-03	2.444E-03
7.361E 01	1.525E-03	3.259E 02	2.208E-03	2.440E-03
7.493E 01	4.232E-01	3.263E 02	2.127E-03	1.741E-03
7.778E 01	7.030E-01	3.270E 02	2.132E-03	1.858E-03
8.168E 01	7.435E-01	3.277E 02	2.100E-03	1.701E-03
8.449E 01	3.826E-01	3.281E 02	2.105E-03	1.817E-03
8.735E 01	1.612E-01	3.283E 02	2.088E-03	1.755E-03
8.736E 01	0.000	3.283E 02	2.088E-03	1.755E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-388.	(LBF)
MEASURED THRUST	-343.	(LBF)
CALCULATED SPECIFIC IMPULSE	******	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	******	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.1778	
MEASURED THRUST COEFFICIENT	-.1570	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3503.	(LBF)
NET THRUST	-208.	(LBF)
SPECIFIC IMPULSE	******	(LBF-SEC/LBM)
THRUST COEFFICIENT	-.0952	

MOMENTUM AND FORCES

INLET FRICTION DRAG	101.7	(LBF)
INLET MOMENTUM CHANGE	-766.8	(LBF)
COMBUSTOR FRICTION DRAG	179.6	(LBF)
COMBUSTOR STRUT DRAG	6.79	(LBF)
COMBUSTOR MOMENTUM CHANGE	3.	(LBF)
NOZZLE FRICTION DRAG	34.41	(LBF)
NOZZLE STRUT DRAG	3.35	(LBF)
NOZZLE MOMENTUM CHANGE	375.	(LBF)
NOZZLE PRESSURE INTEGRAL	413.	(LBF)
EXTERNAL FRICTION DRAG	37.37	(LBF)
EXTERNAL PRESSURE INTEGRAL	-921.	(LBF)
TOTAL EXTERNAL DRAG	-958.	(LBF)
TOTAL STRUT DRAG	10.14	(LBF)
CAVITY FORCE	-1342.	(LBF)
CALCULATED LOAD CELL FORCE	-2689.	(LBF)
MEASURED LOAD CELL FORCE	-2640.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3827	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.267	(IN)
NOZZLE SHROUD TRAILING EDGE	73.607	(IN)
NOZZLE PLUG TRAILING EDGE	67.359	(IN)
STRUT LEADING EDGE	56.523	(IN)
STRUT TRAILING EDGE	65.123	(IN)
COMBUSTOR EXIT	62.283	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.8121	
ADDITIVE DRAG COEFFICIENT	0.0162	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2738	
DELTA PT2	0.1024	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4106	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2789	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8837	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9119	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9111	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8814	
ENTHALPY AT PO - SUPERSONIC	34.61	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	53.96	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0008
EQUIVALENCE RATIO	0.027
COMBUSTOR EFFICIENCY	0.729
TOTAL PRESSURE RATIO	0.3018
COMBUSTOR EFFECTIVENESS	0.7126
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9808
NOZZLE COEFFICIENT - CT	0.9193
PROCESS EFFICIENCY	0.8970
KINETIC ENERGY EFFICIENCY	0.9591

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.368	
1C	44.300	
2A	48.843	
2C	46.250	
3A	54.133	
3B	56.318	
4	44.868	

Reading 96

t = 264.04 sec.

Fuel flow measurement malfunction for 1B indicates no fuel flow from injector 1B. However, 1B manifold pressure indicates flow rates about as planned, similar to 1A. The performance program used fuel flow from 1A only.

READING = 0096 BLOCK = 178 TIME = 264.040 MACH 5.2 PI = 417.499 TI = 2219.2 — 2/27/75 — PAGE 1

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	NOPTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	417.499	2219	441.2(570)	1.3188	28.859	2245											
0.000	0.587	373	-39.4(90)	1.3983	28.858	949	5.170	4904	1.780	0.14393	29.926	0.8116	4684	10.970	156.5		
SPIKE TIP NS		2	0 7														
0.600	22.275	2219	441.2(570)	1.3189	28.859	2246											
0.600	20.374	2172	427.8(557)	1.3205	28.859	2223	0.370	822	1.981	0.14393	29.926	0.8118	5000	1.838	167.1		
WIND TUNNEL		3	0 0														
0.000	417.499	2219	441.2(570)	1.3188	28.859	2245											
0.000	0.660	386	-36.3(93)	1.3985	28.858	965	5.068	4888	1.780	0.15608	32.452	0.8118	5068	11.858	156.2		
SPIKE TIP NS		4	0 0														
0.600	22.275	2219	441.2(570)	1.3189	28.859	2246											
0.600	19.991	2162	424.9(554)	1.3208	28.859	2218	0.407	904	1.981	0.15608	32.452	0.8118	5068	2.192	156.2		
INLET THROAT		5	0 4														
40.400	167.256	2165	425.8(555)	1.3207	28.859	2219											
40.400	20.959	1278	184.3(314)	1.3620	28.858	1731	2.008	3477	1.836	1.06521	32.452	0.1097	4096	62.414	126.2		
INLET UPNRBK		6	0 3														
40.400	167.256	2165	425.8(555)	1.3207	28.859	2219											
40.400	20.427	1269	182.0(311)	1.3626	28.858	1726	2.024	3493	1.836	1.05013	32.452	0.1207	4154	57.004	128.0		
INLET DNNRBK		7	0 4														
40.400	116.087	2165	425.8(555)	1.3207	28.859	2219											
40.400	94.421	2059	395.8(525)	1.3245	28.859	2167	0.566	1226	1.861	1.05013	32.452	0.1207	4154	20.007	128.0		
COMBUSTOR	0	8	1 21														
40.410	141.242	2163	428.6(571)	1.3217	28.004	2253											
40.410	14.722	1214	163.7(306)	1.3666	28.004	1716	2.121	3641	1.896	1.15776	32.530	0.1097	4095	65.502	125.9	0.08	0.07
COMBUSTOR	0	9	2 21														
41.382	126.834	2127	426.0(560)	1.3233	27.975	2236											
41.382	19.768	1326	201.5(336)	1.3600	27.975	1790	1.872	3352	1.899	1.15722	32.530	0.1098	3944	60.275	121.3	0.08	0.01
COMBUSTOR	0	10	3 21														
41.447	126.100	2122	425.8(559)	1.3235	27.971	2234											
41.447	20.105	1331	203.9(337)	1.3598	27.970	1793	1.858	3332	1.899	1.15829	32.530	0.1096	3933	59.976	120.9	0.08	0.00
COMBUSTOR	0	11	4 21														
41.500	125.192	2121	425.6(559)	1.3236	27.970	2234											
41.500	20.524	1340	206.5(340)	1.3592	27.970	1799	1.840	3311	1.899	1.15792	32.530	0.1097	3924	59.582	120.6	0.08	0.00
COMBUSTOR	0	12	5 21														
42.460	81.538	2366	422.5(627)	1.3122	28.246	2338											
42.460	16.836	1604	204.5(410)	1.3420	28.246	1947	1.697	3303	1.954	1.14704	32.530	0.1107	3817	58.877	117.3	0.08	0.59
COMBUSTOR	0	13	6 21														
44.167	98.165	2129	416.9(561)	1.3228	28.010	2236											
44.167	25.176	1513	242.5(387)	1.3489	28.010	1903	1.552	2954	1.917	1.10394	32.530	0.1150	3728	50.673	114.6	0.08	0.09
COMBUSTOR	0	14	7 21														
44.310	100.152	2095	416.5(551)	1.3244	27.976	2220											
44.310	25.642	1486	244.6(379)	1.3507	27.976	1889	1.553	2932	1.911	1.10394	32.530	0.1150	3720	50.307	114.4	0.08	0.01
COMBUSTOR	0	15	8 21														
44.800	98.481	2085	415.0(548)	1.3248	27.971	2216											
44.800	27.236	1508	252.1(386)	1.3495	27.971	1902	1.501	2855	1.911	1.09953	32.530	0.1155	3692	48.777	113.5	0.08	0.00
COMBUSTOR	0	16	9 21														
44.882	97.938	2083	414.7(548)	1.3249	27.970	2215											
44.882	27.057	1507	251.9(385)	1.3496	27.970	1901	1.502	2855	1.911	1.09812	32.530	0.1157	3688	48.715	113.4	0.08	0.00
COMBUSTOR	0	17	10 21														
46.260	71.978	2478	411.1(658)	1.3067	28.413	2380											
46.260	24.026	1903	243.8(492)	1.3271	28.413	2102	1.376	2693	1.969	1.03662	32.530	0.1225	3679	46.606	113.1	0.08	0.94
COMBUSTOR	0	18	11 21														
47.310	86.849	2121	408.5(558)	1.3229	28.032	2231											
47.310	21.718	1497	232.3(382)	1.3496	28.032	1893	1.569	2969	1.924	0.96407	32.530	0.1317	3735	44.489	114.8	0.08	0.14

READING = 0096 BLOCK = 178 TIME = 264.040 MACH 5.2 PT = 417.499 TI = 2219.2

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A		A/AC	WOPTM	L	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
47.407	90.452	2070	408.3(544)	1.3253	27.979	2208											
47.407	21.572	1440	231.2(367)	1.3533	27.979	1861	1.599	2976	1.915	0.95721	32.530	0.1327	3742	44.273	115.0	0.08	0.02
COMBUSTOR	0	20	13 21														
48.110	89.389	2057	406.7(540)	1.3258	27.971	2202											
48.110	17.304	1354	210.1(344)	1.3583	27.971	1808	1.735	3136	1.914	0.89777	32.530	0.1415	3798	43.755	116.7	0.08	0.00
COMBUSTOR	0	21	14 21														
48.857	88.664	2051	405.3(538)	1.3260	27.970	2199											
48.857	16.036	1326	202.8(336)	1.3600	27.970	1790	1.778	3183	1.914	0.81728	32.530	0.1554	3856	40.427	118.6	0.08	0.00
COMBUSTOR	0	22	15 21														
49.387	83.906	2048	404.5(538)	1.3261	27.970	2197											
49.387	12.275	1251	182.9(316)	1.3646	27.969	1742	1.911	3330	1.917	0.76435	32.530	0.1662	3889	39.553	119.6	0.08	0.00
COMBUSTOR	0	23	16 21														
50.797	73.680	2122	402.6(558)	1.3226	28.056	2230											
50.797	11.062	1311	175.6(332)	1.3602	28.056	1778	1.896	3370	1.935	0.65143	32.530	0.1950	3960	34.116	121.7	0.08	0.19
COMBUSTOR	0	24	17 21														
52.897	65.749	2039	398.7(538)	1.3265	27.822	2198											
52.897	6.000	1096	137.6(277)	1.3740	27.822	1641	2.203	3615	1.943	0.53575	32.641	0.2374	4033	30.097	123.6	0.10	0.04
COMBUSTOR	0	25	18 21														
53.397	66.703	2021	398.3(533)	1.3273	27.805	2190											
53.397	6.500	1096	142.2(277)	1.3741	27.805	1641	2.181	3580	1.937	0.51386	32.641	0.2480	4045	28.587	123.9	0.10	0.01
COMBUSTOR	0	26	19 21														
54.147	65.764	2016	397.6(532)	1.3275	27.803	2188											
54.147	5.606	1063	134.1(268)	1.3762	27.803	1617	2.245	3631	1.940	0.48437	32.641	0.2631	4062	27.336	124.4	0.10	0.00
COMBUSTOR	0	27	20 21														
54.907	61.814	2014	397.0(531)	1.3276	27.802	2187											
54.907	4.700	1029	125.3(259)	1.3782	27.802	1592	2.316	3687	1.944	0.45805	32.641	0.2782	4076	26.249	124.9	0.10	0.00
COMBUSTOR	0	28	21 21														
55.760	58.408	2012	396.4(530)	1.3277	27.802	2185											
55.760	4.097	1005	119.1(253)	1.3796	27.802	1575	2.366	3725	1.948	0.43210	32.641	0.2949	4088	25.013	125.3	0.10	0.00
COMBUSTOR	0	29	22 21														
56.332	48.628	2058	396.0(543)	1.3255	27.853	2207											
56.332	3.692	1054	118.3(266)	1.3763	27.853	1609	2.316	3728	1.966	0.34642	32.641	0.3679	4130	20.069	126.5	0.10	0.09
COMBUSTOR	0	30	23 21														
56.387	47.642	2017	396.0(532)	1.3274	27.810	2188											
56.387	2.827	963	106.1(242)	1.3820	27.810	1542	2.409	3808	1.963	0.34544	32.641	0.3689	4131	20.444	126.5	0.10	0.01
COMBUSTOR	0	31	24 21														
56.527	47.888	2011	395.9(530)	1.3277	27.803	2185											
56.527	2.777	953	105.4(240)	1.3825	27.803	1535	2.483	3812	1.962	0.34296	32.641	0.3716	4132	20.320	126.6	0.10	0.00
COMBUSTOR	0	32	25 21														
56.607	52.069	2016	395.8(531)	1.3274	27.809	2187											
56.607	3.498	995	114.9(251)	1.3801	27.809	1567	2.392	3749	1.956	0.34674	32.641	0.3675	4133	20.203	126.6	0.10	0.01
COMBUSTOR	0	33	26 21														
56.887	51.831	2010	395.7(530)	1.3277	27.803	2185											
56.887	3.300	978	111.8(246)	1.3811	27.803	1554	2.426	3769	1.956	0.34578	32.641	0.3686	4135	20.254	126.7	0.10	0.00
COMBUSTOR	0	34	27 21														
57.113	52.949	2009	395.6(530)	1.3278	27.802	2184											
57.113	3.478	985	114.0(248)	1.3807	27.802	1560	2.406	3753	1.954	0.34494	32.641	0.3695	4137	20.121	126.7	0.10	0.00
COMBUSTOR	0	35	28 21														
57.837	55.218	2008	395.2(529)	1.3278	27.802	2183											
57.837	4.050	1015	121.7(256)	1.3790	27.802	1582	2.338	3699	1.951	0.33960	32.641	0.3753	4142	19.523	126.9	0.10	0.00
COMBUSTOR	0	36	29 21														
58.887	46.646	2089	394.7(552)	1.3240	27.890	2220											
58.887	3.712	1086	116.6(274)	1.3741	27.890	1631	2.287	3731	1.973	0.33743	32.641	0.3777	4144	19.563	127.0	0.10	0.16
COMBUSTOR	0	37	30 21														
60.867	37.594	2016	394.0(531)	1.3274	27.815	2187											
60.867	1.762	901	88.6(226)	1.3853	27.815	1494	2.616	3906	1.980	0.34917	32.641	0.3650	4130	21.207	126.5	0.10	0.02

READING = 0096 BLOCK = 178 TIME = 264.040 MACH 5.2 PT = 417.499 TT = 2219.2

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	21														
62.287	52.508	2004	393.7(	528)	1.3279	27.804	2181											
62.287	3.412	980	112.1(	247)	1.3810	27.804	1556	2.413	3754	1.954	0.35865	32.641	0.3553	4119	20.920	126.2	0.10	0.00
COMBUSTOR	0	39	32	21														
64.751	51.751	2000	392.9(	527)	1.3281	27.803	2179											
64.751	4.073	1030	125.7(	260)	1.3781	27.802	1594	2.295	3657	1.955	0.33994	32.641	0.3749	4101	19.318	125.6	0.10	0.00
COMBUSTOR	0	40	33	21														
65.127	48.819	1999	392.7(	527)	1.3281	27.802	2179											
65.127	4.124	1050	130.9(	265)	1.3769	27.802	1608	2.251	3620	1.959	0.31604	32.641	0.4032	4098	17.778	125.6	0.10	0.00
COMBUSTOR REGEN	41	34	4															
65.127	48.819	2184	446.6(	580)	1.3216	27.802	2272											
65.127	6.565	1312	200.3(	334)	1.3610	27.802	1787	1.965	3511	1.984	0.31604	32.641	0.4032	4240	17.242	129.9	0.10	0.00
NOZZLE AE	42	35	4															
87.363	48.819	1999	392.7(	527)	1.3281	27.802	2179											
87.363	0.479	574	9.4(	143)	1.3982	27.802	1198	3.656	4380	1.959	0.06579	32.641	1.9371	4661	4.476	143.4	0.10	0.00
NOZZLE PO	43	36	4															
87.363	48.819	1999	392.7(	527)	1.3281	27.802	2179											
87.363	0.660	629	23.2(	157)	1.3969	27.802	1253	3.431	4300	1.959	0.08123	32.641	1.5688	4628	5.429	141.8	0.10	0.00
NOZZLE AE REGEN	44	37	4															
87.363	48.819	2184	446.6(	580)	1.3216	27.802	2272											
87.363	0.521	651	26.8(	163)	1.3962	27.802	1275	3.586	4573	1.984	0.06579	32.641	1.9371	4897	4.675	150.0	0.10	0.00
NOZZLE PO REGEN	45	38	4															
87.363	48.819	2184	446.6(	580)	1.3216	27.802	2272											
87.363	0.660	697	40.2(	174)	1.3947	27.802	1318	3.421	4510	1.984	0.07690	32.641	1.6571	4855	5.390	148.7	0.10	0.00
FICTIVE COMBUSTR	65	58	0															
65.127	167.256	2518	392.7(	672)	1.3042	28.365	2399											
65.127	0.660	590	-135.1(	145)	1.3944	28.364	1201	4.260	5139	1.920	0.10558	32.641	1.2070	5418	8.435	166.0	0.10	1.00
FICTIVE NOZZLE	66	59	0															
87.363	41.725	1960	381.5(	515)	1.3296	27.802	2159											
87.363	0.510	597	15.2(	149)	1.3977	27.802	1222	3.503	4281	1.964	0.06579	32.641	1.9371	4596	4.377	140.8	0.10	0.00

READING = 0096 BLOCK = 178 TIME = 264.040 MACH 5.2 PI = 417.499 TI = 2219.2

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IH/PSO	P-IH/PIO	P-OB/PSO	P-OB/PIO
6.981E-01	1.415E 00	0.000	-5.444E-01	0.000	0.000	0.000	2.470E-02	2.143E 00	3.369E-03	0.000	0.000
1.836E 01	1.415E 00	0.000	-4.707E 01	0.000	0.000	0.000	1.634E 02	2.143E 00	3.369E-03	0.000	0.000
3.070E 01	3.205E 00	0.000	-2.343E 02	0.000	0.000	0.000	5.153E 02	4.854E 00	7.677E-03	0.000	0.000
3.508E 01	4.257E 00	0.000	-4.762E 02	0.000	0.000	0.000	6.804E 02	6.447E 00	1.020E-02	0.000	0.000
3.526E 01	4.795E 00	6.048E 00	-5.517E 02	0.000	0.000	0.000	6.886E 02	7.261E 00	1.148E-02	9.159E 00	1.449E-02
3.527E 01	4.812E 00	6.035E 00	-5.518E 02	0.000	0.000	0.000	6.888E 02	7.287E 00	1.153E-02	9.136E 00	1.445E-02
3.555E 01	5.625E 00	5.338E 00	-5.616E 02	0.000	0.000	0.000	7.169E 02	8.516E 00	1.347E-02	8.083E 00	1.278E-02
3.594E 01	5.553E 00	4.375E 00	-5.837E 02	-2.178E 02	-2.178E 02	0.000	7.562E 02	8.409E 00	1.330E-02	6.625E 00	1.048E-02
3.606E 01	5.530E 00	5.207E 00	-5.913E 02	-2.194E 02	-2.194E 02	0.000	7.688E 02	8.374E 00	1.325E-02	7.886E 00	1.247E-02
3.648E 01	4.881E 00	8.041E 00	-6.072E 02	-2.247E 02	-2.247E 02	0.000	8.123E 02	7.392E 00	1.169E-02	1.218E 01	1.926E-02
3.701E 01	5.760E 00	1.162E 01	-6.243E 02	-2.748E 02	-2.518E 02	-4.297E 01	8.684E 02	8.723E 00	1.380E-02	1.759E 01	2.782E-02
3.740E 01	7.108E 00	1.422E 01	-6.421E 02	-2.985E 02	-2.572E 02	-6.133E 01	9.098E 02	1.076E 01	1.702E-02	2.154E 01	3.407E-02
3.803E 01	9.315E 00	1.617E 01	-6.924E 02	-3.372E 02	-2.465E 02	-9.072E 01	9.791E 02	1.411E 01	2.231E-02	2.446E 01	3.872E-02
3.842E 01	1.444E 01	1.735E 01	-7.324E 02	-3.614E 02	-2.528E 02	-1.086E 02	1.022E 03	2.187E 01	3.459E-02	2.627E 01	4.156E-02
3.875E 01	1.886E 01	1.889E 01	-7.759E 02	-3.829E 02	-2.590E 02	-1.239E 02	1.060E 03	2.857E 01	4.518E-02	2.861E 01	4.525E-02
3.889E 01	2.068E 01	1.952E 01	-7.922E 02	-3.920E 02	-2.618E 02	-1.302E 02	1.076E 03	3.131E 01	4.952E-02	2.957E 01	4.677E-02
3.901E 01	2.231E 01	2.060E 01	-8.063E 02	-4.003E 02	-2.644E 02	-1.359E 02	1.090E 03	3.379E 01	5.344E-02	3.119E 01	4.933E-02
3.940E 01	2.123E 01	2.395E 01	-8.364E 02	-4.269E 02	-2.733E 02	-1.536E 02	1.134E 03	3.215E 01	5.084E-02	3.627E 01	5.737E-02
3.950E 01	2.094E 01	2.004E 01	-8.414E 02	-4.342E 02	-2.759E 02	-1.583E 02	1.146E 03	3.171E 01	5.015E-02	3.035E 01	4.800E-02
3.989E 01	2.003E 01	5.425E 00	-8.707E 02	-4.620E 02	-2.864E 02	-1.756E 02	1.191E 03	3.033E 01	4.797E-02	8.215E 00	1.299E-02
4.000E 01	1.976E 01	5.423E 00	-8.851E 02	-4.704E 02	-2.897E 02	-1.806E 02	1.204E 03	2.993E 01	4.734E-02	8.213E 00	1.299E-02
4.040E 01	2.392E 01	5.418E 00	-9.278E 02	-5.002E 02	-3.021E 02	-1.981E 02	1.251E 03	3.623E 01	5.730E-02	8.205E 00	1.298E-02
4.041E 01	2.403E 01	5.418E 00	-9.288E 02	-5.010E 02	-3.024E 02	-1.986E 02	1.252E 03	3.638E 01	5.755E-02	8.204E 00	1.298E-02
4.138E 01	3.413E 01	5.404E 00	-1.061E 03	-5.861E 02	-3.366E 02	-2.494E 02	1.367E 03	5.169E 01	8.175E-02	8.184E 00	1.294E-02
4.145E 01	3.481E 01	5.403E 00	-1.071E 03	-5.926E 02	-3.392E 02	-2.534E 02	1.375E 03	5.271E 01	8.337E-02	8.182E 00	1.294E-02
4.150E 01	3.536E 01	5.685E 00	-1.079E 03	-5.960E 02	-3.412E 02	-2.567E 02	1.382E 03	5.355E 01	8.470E-02	8.609E 00	1.362E-02
4.246E 01	2.291E 01	1.076E 01	-1.170E 03	-6.987E 02	-3.798E 02	-3.188E 02	1.496E 03	3.470E 01	5.488E-02	1.629E 01	2.577E-02
4.417E 01	3.057E 01	1.978E 01	-1.228E 03	-8.812E 02	-4.425E 02	-4.388E 02	1.703E 03	4.630E 01	7.322E-02	2.996E 01	4.738E-02
4.431E 01	3.121E 01	2.007E 01	-1.234E 03	-8.962E 02	-4.470E 02	-4.491E 02	1.720E 03	4.727E 01	7.476E-02	3.039E 01	4.807E-02
4.480E 01	3.341E 01	2.106E 01	-1.255E 03	-9.443E 02	-4.619E 02	-4.824E 02	1.780E 03	5.060E 01	8.003E-02	3.189E 01	5.044E-02
4.488E 01	3.289E 01	2.123E 01	-1.258E 03	-9.519E 02	-4.642E 02	-4.877E 02	1.790E 03	4.981E 01	7.877E-02	3.214E 01	5.084E-02
4.626E 01	2.404E 01	2.401E 01	-1.245E 03	-1.071E 03	-5.026E 02	-5.686E 02	1.959E 03	3.641E 01	5.759E-02	3.636E 01	5.751E-02
4.731E 01	1.731E 01	2.613E 01	-1.173E 03	-1.155E 03	-5.298E 02	-6.253E 02	2.090E 03	2.621E 01	4.145E-02	3.957E 01	6.259E-02
4.741E 01	1.682E 01	2.632E 01	-1.164E 03	-1.163E 03	-5.323E 02	-6.305E 02	2.102E 03	2.547E 01	4.029E-02	3.987E 01	6.305E-02
4.811E 01	1.327E 01	2.133E 01	-1.099E 03	-1.214E 03	-5.495E 02	-6.644E 02	2.189E 03	2.010E 01	3.180E-02	3.231E 01	5.110E-02
4.886E 01	1.604E 01	1.604E 01	-1.030E 03	-1.258E 03	-5.670E 02	-6.914E 02	2.283E 03	2.426E 01	3.841E-02	2.428E 01	3.841E-02
4.939E 01	1.227E 01	1.227E 01	-9.913E 02	-1.284E 03	-5.789E 02	-7.050E 02	2.349E 03	1.859E 01	2.940E-02	1.859E 01	2.940E-02
5.080E 01	1.106E 01	1.106E 01	-9.050E 02	-1.346E 03	-6.086E 02	-7.379E 02	2.527E 03	1.675E 01	2.650E-02	1.675E 01	2.650E-02
5.290E 01	6.000E 00	6.000E 00	-8.111E 02	-1.427E 03	-6.474E 02	-7.795E 02	2.793E 03	9.086E 00	1.437E-02	9.086E 00	1.437E-02
5.340E 01	6.500E 00	6.500E 00	-7.948E 02	-1.442E 03	-6.557E 02	-7.862E 02	2.857E 03	9.843E 00	1.557E-02	9.843E 00	1.557E-02
5.415E 01	5.606E 00	5.606E 00	-7.714E 02	-1.463E 03	-6.675E 02	-7.958E 02	2.953E 03	8.489E 00	1.343E-02	8.489E 00	1.343E-02
5.491E 01	4.700E 00	4.700E 00	-7.514E 02	-1.483E 03	-6.786E 02	-8.049E 02	3.050E 03	7.118E 00	1.126E-02	7.118E 00	1.126E-02
5.576E 01	4.097E 00	4.097E 00	-7.326E 02	-1.504E 03	-6.901E 02	-8.143E 02	3.160E 03	6.204E 00	9.812E-03	6.204E 00	9.812E-03
5.633E 01	3.692E 00	3.692E 00	-6.886E 02	-1.517E 03	-6.965E 02	-8.202E 02	3.209E 03	5.592E 00	8.844E-03	5.592E 00	8.844E-03
5.639E 01	2.000E 00	3.654E 00	-6.876E 02	-1.518E 03	-6.970E 02	-8.208E 02	3.216E 03	3.029E 00	4.790E-03	5.533E 00	8.751E-03
5.653E 01	2.000E 00	3.555E 00	-6.852E 02	-1.521E 03	-6.983E 02	-8.222E 02	3.234E 03	3.029E 00	4.790E-03	5.383E 00	8.514E-03
5.661E 01	3.498E 00	3.498E 00	-6.838E 02	-1.522E 03	-6.991E 02	-8.230E 02	3.244E 03	5.297E 00	8.378E-03	5.297E 00	8.378E-03
5.689E 01	3.300E 00	3.300E 00	-6.794E 02	-1.527E 03	-7.015E 02	-8.257E 02	3.280E 03	4.997E 00	7.904E-03	4.997E 00	7.904E-03
5.711E 01	3.478E 00	3.478E 00	-6.761E 02	-1.531E 03	-7.034E 02	-8.278E 02	3.309E 03	5.266E 00	8.332E-03	5.268E 00	8.332E-03
5.784E 01	4.050E 00	4.050E 00	-6.659E 02	-1.543E 03	-7.090E 02	-8.345E 02	3.402E 03	6.133E 00	9.701E-03	6.133E 00	9.701E-03
5.886E 01	3.712E 00	3.712E 00	-6.569E 02	-1.559E 03	-7.155E 02	-8.436E 02	3.532E 03	5.622E 00	8.892E-03	5.622E 00	8.892E-03
6.087E 01	1.762E 00	1.762E 00	-6.562E 02	-1.581E 03	-7.247E 02	-8.568E 02	3.790E 03	2.669E 00	4.222E-03	2.669E 00	4.222E-03
6.229E 01	3.412E 00	3.412E 00	-6.562E 02	-1.593E 03	-7.301E 02	-8.631E 02	3.972E 03	5.166E 00	8.174E-03	5.166E 00	8.174E-03
6.475E 01	4.073E 00	4.073E 00	-6.562E 02	-1.610E 03	-7.410E 02	-8.774E 02	4.269E 03	6.167E 00	9.755E-03	6.167E 00	9.755E-03
6.513E 01	4.075E 00	4.173E 00	-6.562E 02	-1.623E 03	-7.429E 02	-8.802E 02	4.337E 03	6.171E 00	9.760E-03	6.320E 00	9.996E-03
6.517E 01	4.075E 00	4.184E 00	-6.562E 02	-1.624E 03	-7.431E 02	-8.805E 02	4.342E 03	6.171E 00	9.760E-03	6.336E 00	1.002E-02

XABS	P-IB	P-OB	PDA	GOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.537E 01	4.033E 00	4.237E 00	-6.562E 02	-1.626E 03	-7.441E 02	-8.822E 02	4.368E 03	6.108E 00	9.661E-03	6.417E 00	1.015E-02
6.703E 01	3.687E 00	4.350E 00	-6.103E 02	-1.646E 03	-7.522E 02	-8.959E 02	4.583E 03	5.584E 00	8.832E-03	6.587E 00	1.042E-02
6.770E 01	3.005E 00	3.420E 00	-5.372E 02	-1.657E 03	-7.554E 02	-9.013E 02	4.605E 03	4.550E 00	7.197E-03	5.179E 00	8.192E-03
6.847E 01	2.220E 00	2.312E 00	-4.614E 02	-1.667E 03	-7.589E 02	-9.082E 02	4.760E 03	3.362E 00	5.317E-03	3.500E 00	5.537E-03
6.919E 01	2.204E 00	1.275E 00	-4.081E 02	-1.678E 03	-7.622E 02	-9.161E 02	4.848E 03	3.337E 00	5.278E-03	1.931E 00	3.054E-03
6.980E 01	2.190E 00	1.195E 00	-3.691E 02	-1.687E 03	-7.648E 02	-9.222E 02	4.922E 03	3.316E 00	5.246E-03	1.809E 00	2.862E-03
7.075E 01	1.677E 00	1.070E 00	-3.177E 02	-1.695E 03	-7.687E 02	-9.263E 02	5.036E 03	2.540E 00	4.017E-03	1.620E 00	2.563E-03
7.118E 01	1.445E 00	1.170E 00	-2.981E 02	-1.697E 03	-7.704E 02	-9.270E 02	5.068E 03	2.188E 00	3.461E-03	1.772E 00	2.802E-03
7.271E 01	8.849E-01	1.525E 00	-2.383E 02	-1.710E 03	-7.757E 02	-9.346E 02	5.273E 03	1.340E 00	2.119E-03	2.309E 00	3.653E-03
7.286E 01	8.300E-01	1.361E 00	-2.335E 02	-1.712E 03	-7.761E 02	-9.359E 02	5.290E 03	1.257E 00	1.968E-03	2.061E 00	3.259E-03
7.361E 01	7.164E-01	5.400E-01	-2.035E 02	-1.721E 03	-7.781E 02	-9.434E 02	5.374E 03	1.085E 00	1.716E-03	8.178E-01	1.293E-03
7.361E 01	7.158E-01	5.356E-01	-2.024E 02	-1.721E 03	-7.781E 02	-9.434E 02	5.375E 03	1.084E 00	1.715E-03	8.111E-01	1.283E-03
7.494E 01	5.150E-01	0.000	-1.894E 02	-1.740E 03	-7.809E 02	-9.591E 02	5.426E 03	7.799E-01	1.234E-03	0.000	0.000
7.779E 01	4.000E-01	0.000	-1.711E 02	-1.741E 03	-7.853E 02	-9.555E 02	5.525E 03	6.057E-01	9.581E-04	0.000	0.000
8.169E 01	3.700E-01	0.000	-1.547E 02	-1.856E 03	-7.884E 02	-1.069E 03	5.630E 03	5.603E-01	8.862E-04	0.000	0.000
8.450E 01	5.400E-01	0.000	-1.446E 02	-1.988E 03	-7.905E 02	-1.197E 03	5.684E 03	8.178E-01	1.293E-03	0.000	0.000
8.736E 01	4.450E-01	0.000	-1.327E 02	-1.992E 03	-7.943E 02	-1.197E 03	5.707E 03	6.739E-01	1.066E-03	0.000	0.000
8.736E 01	4.448E-01	0.000	-1.327E 02	-1.992E 03	-7.943E 02	-1.197E 03	5.707E 03	6.736E-01	1.065E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.256E 02	1.256E 02	2.295E-03	5.015E-02
4.041E 01	1.819E-01	1.258E 02	2.521E-03	3.761E-02
4.138E 01	1.797E 01	1.436E 02	2.451E-03	4.677E-02
4.145E 01	1.136E 00	1.449E 02	2.433E-03	4.755E-02
4.150E 01	9.309E-01	1.458E 02	2.436E-03	4.815E-02
4.246E 01	1.681E 01	1.626E 02	2.507E-03	4.084E-02
4.417E 01	2.984E 01	1.925E 02	2.767E-03	4.812E-02
4.431E 01	2.360E 00	1.948E 02	2.609E-03	5.132E-02
4.480E 01	7.729E 00	2.026E 02	2.609E-03	5.323E-02
4.488E 01	1.272E 00	2.038E 02	2.609E-03	5.323E-02
4.626E 01	2.104E 01	2.249E 02	2.606E-03	4.850E-02
4.731E 01	1.622E 01	2.411E 02	2.866E-03	4.085E-02
4.741E 01	1.466E 00	2.426E 02	2.607E-03	4.440E-02
4.811E 01	9.874E 00	2.524E 02	2.517E-03	3.912E-02
4.886E 01	9.806E 00	2.622E 02	2.471E-03	3.691E-02
4.930E 01	6.522E 00	2.688E 02	2.435E-03	3.062E-02
5.080E 01	1.573E 01	2.845E 02	2.377E-03	2.777E-02
5.290E 01	2.064E 01	3.051E 02	2.453E-03	1.666E-02
5.340E 01	4.460E 00	3.096E 02	2.318E-03	1.636E-02
5.415E 01	6.161E 00	3.158E 02	2.281E-03	1.647E-02
5.491E 01	5.932E 00	3.217E 02	2.266E-03	1.437E-02
5.576E 01	6.354E 00	3.280E 02	2.255E-03	1.266E-02
5.633E 01	2.506E 00	3.306E 02	2.205E-03	1.167E-02
5.639E 01	3.199E-01	3.309E 02	2.279E-03	9.153E-03
5.653E 01	8.151E-01	3.317E 02	2.222E-03	9.173E-03
5.661E 01	4.637E-01	3.322E 02	2.250E-03	1.075E-02
5.689E 01	1.605E 00	3.338E 02	2.200E-03	1.042E-02
5.711E 01	1.277E 00	3.350E 02	2.188E-03	1.065E-02
5.784E 01	4.009E 00	3.390E 02	2.180E-03	1.207E-02
5.886E 01	5.556E 00	3.446E 02	2.170E-03	1.131E-02
6.087E 01	1.190E 01	3.565E 02	2.359E-03	6.233E-03
6.229E 01	8.725E 00	3.652E 02	2.188E-03	1.056E-02
6.475E 01	1.397E 01	3.792E 02	2.205E-03	1.196E-02
6.513E 01	1.986E 00	3.812E 02	2.233E-03	1.195E-02
6.517E 01	1.848E-01	3.814E 02	2.241E-03	1.201E-02
6.537E 01	8.279E-01	3.822E 02	2.240E-03	1.201E-02
6.703E 01	6.899E 00	3.891E 02	2.225E-03	1.172E-02
6.770E 01	2.435E 00	3.915E 02	2.160E-03	1.000E-02
6.847E 01	2.403E 00	3.939E 02	2.111E-03	7.781E-03
6.919E 01	1.852E 00	3.958E 02	2.061E-03	6.414E-03
6.980E 01	1.422E 00	3.972E 02	2.055E-03	6.266E-03
7.075E 01	2.044E 00	3.993E 02	2.019E-03	5.398E-03
7.118E 01	8.546E-01	4.001E 02	2.008E-03	5.200E-03
7.271E 01	2.897E 00	4.030E 02	1.987E-03	4.880E-03
7.286E 01	2.555E-01	4.033E 02	1.971E-03	4.549E-03
7.361E 01	1.022E 00	4.043E 02	1.880E-03	3.017E-03
7.361E 01	1.603E-03	4.043E 02	1.879E-03	3.009E-03
7.494E 01	4.799E-01	4.048E 02	1.845E-03	2.599E-03
7.779E 01	7.771E-01	4.055E 02	1.799E-03	2.143E-03
8.169E 01	7.344E-01	4.063E 02	1.776E-03	2.009E-03
8.450E 01	4.239E-01	4.067E 02	1.823E-03	2.645E-03
8.736E 01	1.861E-01	4.069E 02	1.785E-03	2.260E-03
8.736E 01	0.000	4.069E 02	1.785E-03	2.279E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-553.	(LBF)
MEASURED THRUST	-311.	(LBF)
CALCULATED SPECIFIC IMPULSE	-5893.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-3315.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.1621	
MEASURED THRUST COEFFICIENT	-.1024	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	4808.	(LBF)
NET THRUST	-341.	(LBF)
SPECIFIC IMPULSE	-3632.	(LBF-SEC/LBM)
THRUST COEFFICIENT	-.1122	

MOMENTUM AND FORCES

INLET FRICTION DRAG	125.6	(LBF)
INLET MOMENTUM CHANGE	******	(LBF)
COMBUSTOR FRICTION DRAG	255.6	(LBF)
COMBUSTOR STRUT DRAG	13.33	(LBF)
COMBUSTOR MOMENTUM CHANGE	3.	(LBF)
NOZZLE FRICTION DRAG	25.70	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	498.	(LBF)
NOZZLE PRESSURE INTEGRAL	524.	(LBF)
EXTERNAL FRICTION DRAG	42.66	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1265.	(LBF)
TOTAL EXTERNAL DRAG	-1308.	(LBF)
TOTAL STRUT DRAG	13.33	(LBF)
CAVITY FORCE	-1371.	(LBF)
CALCULATED LOAD CELL FORCE	-3232.	(LBF)
MEASURED LOAD CELL FORCE	-2986.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3866	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.271	(IN)
NOZZLE SHROUD TRAILING EDGE	73.611	(IN)
NOZZLE PLUG TRAILING EDGE	87.363	(IN)
STRUT LEADING EDGE	56.527	(IN)
STRUT TRAILING EDGE	65.127	(IN)
COMBUSTOR EXIT	65.127	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.8118	
ADDITIVE DRAG COEFFICIENT	0.0162	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2729	
DELTA PT2	0.1474	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4006	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2781	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8897	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9139	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9168	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8898	
ENTHALPY AT PO - SUPERSONIC	-12.01	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	0.90	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0029
EQUIVALENCE RATIO	0.096
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.2919
COMBUSTION EFFECTIVENESS	0.3972

INJECTOR DISCHARGE COEFFICIENTS 0.8899,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9818
NOZZLE COEFFICIENT - CT	0.9223
PROCESS EFFICIENCY	0.9725
KINETIC ENERGY EFFICIENCY	0.9618

FUEL INJECTIONS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.372	B
1C	44.300	
2A	48.847	
2C	46.250	
3A	54.137	
3B	56.322	
4	44.872	

Reading 96

t = 274.84 sec.

Injector 1B fuel flow measurement malfunctioned,

RAMJET PERFORMANCE

SUMMARY REPORT

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              P       T      H            GAMMA   MOLWT  SONV  MACH   VEL    S      W/A        *      A/AC    MOPIM    Q      IVAC   PHI  ETAC
WIND TUNNEL           1    0   4
 0.000    417.249 2222   442.0( 571) 1.3187 28.859 2247
 0.000      0.586  374   -39.3(  90) 1.3963 28.858  949 5.170 4908 1.780 0.14370 29.878 0.8118    4679 10.960 156.6
SPIKE TIP NS          2    0   7
 0.600     22.187 2222   442.0( 571) 1.3188 28.859 2247
 0.600     20.282 2174   428.4( 557) 1.3204 28.859 2224 0.371  825 1.982 0.14370 29.878 0.8118    4983  1.842 166.6
WIND TUNNEL           3    0   0
 0.000    417.249 2222   442.0( 571) 1.3187 28.859 2247
 0.000      0.657  386   -36.3(  93) 1.3985 28.858  965 5.072 4892 1.780 0.15534 32.299 0.8118    5048 11.811 156.3
SPIKE TIP NS          4    0   0
 0.600     22.187 2222   442.0( 571) 1.3188 28.859 2247
 0.600     19.913 2164   425.7( 555) 1.3207 28.859 2219 0.407  904 1.982 0.15534 32.299 0.8118    5048  2.185 156.3
INLET THROAT          5    0   4
40.400    163.683 2169   427.0( 556) 1.3206 28.859 2221
40.400     21.315 1293   188.4( 318) 1.3610 28.858 1742 1.984 3456 1.838 1.06350 32.299 0.1097    4068 61.743 125.9
INLET UPNRBK          6    0   3
40.400    163.683 2169   427.0( 556) 1.3206 28.859 2221
40.400     20.651 1283   185.6( 315) 1.3617 28.858 1735 2.004 3476 1.838 1.04516 32.299 0.1207    4128 56.459 127.8
INLET DNNRBK          7    0   4
40.400    115.206 2169   427.0( 556) 1.3206 28.859 2221
40.400     93.478 2061   396.6( 526) 1.3244 28.859 2169 0.569 1234 1.862 1.04516 32.299 0.1207    4128 20.046 127.8
COMBUSTOR        0    8    1  21
40.410    121.545 2178   437.7( 598) 1.3224 26.876 2308
40.410     15.791 1295   180.4( 341) 1.3625 26.876 1807 1.986 3588 1.973 1.15620 32.486 0.1097    4067 64.472 125.2 0.20 0.07
COMBUSTOR        0    9    2  21
41.382    114.761 2106   435.3( 577) 1.3257 26.811 2275
41.382     23.244 1404   229.9( 372) 1.3568 26.811 1879 1.706 3205 1.968 1.15565 32.486 0.1098    3890 57.565 119.7 0.20 0.01
COMBUSTOR        0   10    3  21
41.447    114.511 2096   435.1( 574) 1.3262 26.801 2271
41.447     23.743 1405   233.1( 373) 1.3568 26.801 1880 1.691 3179 1.967 1.15673 32.486 0.1096    3876 57.140 119.3 0.20 0.00
COMBUSTOR        0   11    4  21
41.500    113.680 2094   434.9( 574) 1.3262 26.800 2270
41.500     24.321 1415   236.4( 375) 1.3562 26.799 1887 1.670 3151 1.967 1.15636 32.486 0.1097    3865 56.632 119.0 0.20 0.00
COMBUSTOR        0   12    5  21
42.460     87.442 2084   432.0( 571) 1.3266 26.799 2265
42.460     16.328 1358   220.5( 360) 1.3595 26.799 1851 1.758 3253 1.985 1.14549 32.486 0.1107    3747 57.905 115.4 0.20 0.00
COMBUSTOR        0   13    6  21
44.167     84.361 2211   426.7( 607) 1.3205 26.947 2321
44.167     25.677 1645   258.6( 440) 1.3427 26.947 2018 1.437 2900 2.003 1.10245 32.486 0.1150    3685 49.685 113.4 0.20 0.14
COMBUSTOR        0   14    7  21
44.310     91.257 2086   426.2( 571) 1.3263 26.821 2265
44.310     26.164 1522   260.4( 406) 1.3502 26.821 1952 1.476 2881 1.982 1.10246 32.486 0.1150    3679 49.352 113.3 0.20 0.02
COMBUSTOR        0   15    8  21
44.800     91.723 2063   424.7( 564) 1.3273 26.803 2254
44.800     27.828 1526   267.0( 407) 1.3501 26.803 1955 1.457 2809 1.979 1.09805 32.486 0.1155    3659 47.931 112.6 0.20 0.00
COMBUSTOR        0   16    9  21
44.882     91.525 2059   424.5( 563) 1.3275 26.800 2252
44.882     27.738 1523   266.9( 406) 1.3503 26.800 1953 1.436 2808 1.978 1.09664 32.486 0.1157    3657 47.848 112.6 0.20 0.00
COMBUSTOR        0   17   10  21
46.260     88.040 2046   420.4( 559) 1.3260 26.799 2245
46.260     26.207 1505   262.0( 401) 1.3513 26.799 1942 1.450 2816 1.979 1.03522 32.486 0.1225    3666 45.301 112.8 0.20 0.00
COMBUSTOR        0   18   11  21
47.310     81.998 2152   417.4( 590) 1.3229 26.917 2293
47.310     25.042 1599   254.2( 427) 1.3453 26.917 1993 1.434 2858 1.997 0.96277 32.486 0.1317    3730 42.756 114.6 0.20 0.11
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	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MUNIN	C	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	21														
47.407	87.776	2052	417.2(561)		1.3276	26.817	2247											
47.407	25.418	1499	255.2(399)		1.3514	26.817	1938	1.469	2847	1.980	0.95592	32.486	0.1327	3738	42.286	115.1	0.20	0.02
COMBUSTOR	0	20	13	21														
48.110	89.108	2031	415.3(555)		1.3285	26.802	2237											
48.110	25.541	1479	253.8(394)		1.3527	26.802	1926	1.475	2842	1.976	0.89656	32.486	0.1415	3795	39.600	116.8	0.20	0.00
COMBUSTOR	0	21	14	21														
48.857	88.182	2022	413.4(552)		1.3288	26.800	2233											
48.857	21.533	1412	235.5(375)		1.3564	26.800	1885	1.565	2984	1.976	0.81617	32.486	0.1554	3870	37.843	119.1	0.20	0.00
COMBUSTOR	0	22	15	21														
49.387	87.513	2018	412.3(551)		1.3290	26.799	2231											
49.387	18.712	1360	221.1(360)		1.3594	26.799	1852	1.670	3093	1.976	0.76332	32.486	0.1662	3919	36.686	120.6	0.20	0.00
COMBUSTOR	0	23	16	21														
50.797	63.894	2215	409.5(608)		1.3197	27.009	2320											
50.797	10.162	1394	169.0(368)		1.3556	27.009	1865	1.860	3469	2.022	0.65055	32.486	0.1950	4010	35.075	123.5	0.20	0.20
COMBUSTOR	0	24	17	21														
52.897	66.710	2024	405.0(555)		1.3285	26.686	2238											
52.897	6.550	1107	141.1(282)		1.3741	26.686	1684	2.158	3634	2.005	0.53502	32.597	0.2379	4081	30.217	125.2	0.21	0.03
COMBUSTOR	0	25	18	21														
53.397	70.011	1990	404.4(546)		1.3301	26.654	2222											
53.397	6.617	1075	141.7(283)		1.3762	26.654	1662	2.182	3626	1.997	0.51316	32.597	0.2480	4094	28.914	125.6	0.21	0.00
COMBUSTOR	0	26	19	21														
54.147	68.232	1982	403.5(543)		1.3305	26.650	2218											
54.147	5.930	1047	135.3(275)		1.3779	26.650	1640	2.233	3663	1.998	0.48372	32.597	0.2631	4112	27.539	126.1	0.21	0.00
COMBUSTOR	0	27	20	21														
54.907	65.684	1979	402.7(542)		1.3306	26.649	2216											
54.907	5.250	1021	128.4(268)		1.3794	26.649	1621	2.266	3705	2.000	0.45743	32.597	0.2782	4127	26.335	126.6	0.21	0.00
COMBUSTOR	0	28	21	21														
55.760	61.868	1976	401.9(541)		1.3307	26.649	2215											
55.760	4.410	987	119.8(259)		1.3812	26.649	1595	2.357	3759	2.004	0.43152	32.597	0.2949	4142	25.210	127.1	0.21	0.00
COMBUSTOR	0	29	22	21														
56.332	49.217	2058	401.4(565)		1.3268	26.732	2253											
56.332	3.847	1061	114.6(278)		1.3765	26.732	1648	2.299	3788	2.032	0.34595	32.597	0.3679	4200	20.365	128.9	0.21	0.06
COMBUSTOR	0	30	23	21														
56.387	53.938	1987	401.4(545)		1.3302	26.661	2220											
56.387	3.371	958	107.9(251)		1.3828	26.661	1572	2.438	3832	2.016	0.34498	32.597	0.3689	4201	20.544	128.9	0.21	0.01
COMBUSTOR	0	31	24	21														
56.527	54.727	1976	401.3(541)		1.3307	26.651	2215											
56.527	3.302	943	106.9(247)		1.3837	26.651	1560	2.460	3838	2.013	0.34250	32.597	0.3716	4203	20.427	128.9	0.21	0.00
COMBUSTOR	0	32	25	21														
56.607	52.840	2011	401.2(551)		1.3290	26.686	2231											
56.607	3.576	993	110.0(260)		1.3807	26.686	1598	2.388	3817	2.021	0.34627	32.597	0.3675	4204	20.540	129.0	0.21	0.03
COMBUSTOR	0	33	26	21														
56.887	55.215	1979	401.0(542)		1.3305	26.654	2216											
56.887	3.300	942	105.6(247)		1.3837	26.654	1559	2.466	3845	2.013	0.34531	32.597	0.3686	4207	20.633	129.1	0.21	0.00
COMBUSTOR	0	34	27	21														
57.113	58.107	1973	400.8(541)		1.3308	26.650	2213											
57.113	3.740	959	111.4(251)		1.3828	26.650	1573	2.420	3805	2.008	0.34448	32.597	0.3695	4209	20.372	129.1	0.21	0.00
COMBUSTOR	0	35	28	21														
57.837	61.812	1971	400.3(540)		1.3309	26.649	2212											
57.837	5.150	1028	130.4(270)		1.3790	26.649	1626	2.260	3675	2.003	0.33914	32.597	0.3753	4219	19.371	129.4	0.21	0.00
COMBUSTOR	0	36	29	21														
58.857	61.881	1969	399.6(539)		1.3310	26.649	2211											
58.857	4.537	991	120.4(260)		1.3810	26.649	1598	2.339	3738	2.003	0.33697	32.597	0.3777	4226	19.575	129.6	0.21	0.00
COMBUSTOR	0	37	30	21														
60.867	37.054	2119	398.5(583)		1.3238	26.804	2281											
60.867	2.362	1037	87.4(272)		1.3773	26.804	1628	2.424	3946	2.060	0.34870	32.597	0.3650	4219	21.383	129.4	0.21	0.14

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READING = 0096  BLOCK = 190  TIME = 274.840  MACH  5.2  PI = 417.249  TI = 2221.9                                PAGE  3

                P      T       H             GAMMA  MOLWT SONV  MACH  VEL   S      W/A       W     A/AC    MUPIM   G     IVAC  PHI  ETAC
COMBUSTOR        0    38   31    4
62.287     45.716 2273   397.9( 627) 1.3167 26.964 2349
62.287      9.600 1541   180.8( 411) 1.3465 26.964 1956 1.665 3296 2.060 0.35815 32.597 0.3553   4213 16.343 129.2 0.21 0.28
COMBUSTOR        0    39   32    4
64.751     40.376 2356   396.6( 652) 1.3128 27.055 2384
64.751     10.290 1684   195.3( 451) 1.3385 27.055 2035 1.559 3175 2.077 0.33948 32.597 0.3749   4203 16.741 128.9 0.21 0.36
COMBUSTOR        0    40   33    4
65.127     42.235 2202   396.3( 607) 1.3199 26.097 2318
65.127      7.785 1440   171.6( 382) 1.3527 26.096 1897 1.767 3353 2.059 0.31561 32.597 0.4032   4202 16.447 128.9 0.21 0.22
COMBUSTOR  REGEN   41   34    3
65.127     42.235 2298   425.7( 636) 1.3165 26.897 2365
65.127      8.165 1526   196.2( 407) 1.3460 26.896 1990 1.738 3389 2.072 0.31561 32.597 0.4032   4277 16.622 131.2 0.21 0.22
NOZZLE  AE         42   35    3
87.363     42.235 2202   396.3( 607) 1.3199 26.897 2318
87.363      0.581  709   -27.1( 184) 1.3929 26.096 1351 3.408 4603 2.059 0.06570 32.597 1.9371   4952  4.700 151.9 0.21 0.22
NOZZLE  PO         43   36    3
87.363     42.235 2202   396.3( 607) 1.3199 26.897 2318
87.363      0.657  733   -20.5( 190) 1.3919 26.096 1374 3.325 4567 2.059 0.07118 32.597 1.7880   4928  5.052 151.2 0.21 0.22
NOZZLE  AE REGEN   44   37    3
87.363     42.235 2298   425.7( 636) 1.3165 26.897 2365
87.363      0.605  753   -15.3( 195) 1.3911 26.096 1392 3.375 4698 2.072 0.06570 32.597 1.9371   5060  4.796 155.2 0.21 0.22
NOZZLE  PO REGEN   45   38    3
87.363     42.235 2298   425.7( 636) 1.3165 26.897 2365
87.363      0.657  771   -10.7( 200) 1.3904 26.096 1407 3.320 4673 2.072 0.06931 32.597 1.8363   5043  5.033 154.7 0.21 0.22
FICTIVE COMBUSTR   65   58    0
65.127    163.683 3027   396.3( 851) 1.2824 27.796 2635
65.127      0.657  755  -266.8( 192) 1.3851 27.797 1367 4.213 5760 2.024 0.09016 32.597 1.4116   6073  8.071 186.3 0.21 1.00
FICTIVE NOZZLE     66   59    0
87.363     24.873 2214   399.8( 610) 1.3195 26.896 2324
87.363      0.780  898    22.9( 234) 1.3843 26.096 1516 2.865 4343 2.100 0.06570 32.597 1.9371   4787  4.434 146.9 0.21 0.22
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XABS	P-IB	P-OB	PDA	UOX	W-IB	W-OB	CAWALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PIO
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1.836E 01	1.410E 00	0.000	-4.690E 01	0.000	0.000	0.000	1.634E 02	2.147E 00	3.379E-03	0.000	0.000
3.070E 01	3.205E 00	0.000	-2.340E 02	0.000	0.000	0.000	5.053E 02	4.880E 00	7.661E-03	0.000	0.000
3.508E 01	4.254E 00	0.000	-4.757E 02	0.000	0.000	0.000	6.804E 02	6.478E 00	1.020E-02	0.000	0.000
3.526E 01	4.793E 00	6.045E 00	-5.512E 02	0.000	0.000	0.000	6.886E 02	7.298E 00	1.149E-02	9.204E 00	1.449E-02
3.527E 01	4.810E 00	6.029E 00	-5.513E 02	0.000	0.000	0.000	6.888E 02	7.325E 00	1.153E-02	9.181E 00	1.445E-02
3.555E 01	5.625E 00	5.325E 00	-5.611E 02	0.000	0.000	0.000	7.169E 02	8.565E 00	1.346E-02	8.108E 00	1.276E-02
3.594E 01	5.561E 00	4.350E 00	-5.833E 02	-2.169E 02	-2.169E 02	0.000	7.562E 02	8.467E 00	1.333E-02	6.624E 00	1.043E-02
3.606E 01	5.540E 00	5.183E 00	-5.909E 02	-2.205E 02	-2.205E 02	0.000	7.688E 02	8.436E 00	1.328E-02	7.893E 00	1.242E-02
3.648E 01	4.882E 00	8.020E 00	-6.070E 02	-2.259E 02	-2.259E 02	0.000	8.123E 02	7.434E 00	1.170E-02	1.221E 01	1.922E-02
3.701E 01	5.760E 00	1.160E 01	-6.242E 02	-2.718E 02	-2.330E 02	-3.885E 01	8.684E 02	8.771E 00	1.380E-02	1.766E 01	2.780E-02
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3.803E 01	9.367E 00	1.616E 01	-6.929E 02	-3.296E 02	-2.477E 02	-8.203E 01	9.791E 02	1.426E 01	2.245E-02	2.464E 01	3.879E-02
3.842E 01	1.456E 01	1.739E 01	-7.334E 02	-3.523E 02	-2.541E 02	-9.818E 01	1.022E 03	2.217E 01	3.489E-02	2.648E 01	4.167E-02
3.675E 01	1.903E 01	1.894E 01	-7.774E 02	-3.725E 02	-2.605E 02	-1.121E 02	1.060E 03	2.898E 01	4.562E-02	2.884E 01	4.539E-02
3.889E 01	2.087E 01	1.957E 01	-7.940E 02	-3.810E 02	-2.633E 02	-1.177E 02	1.076E 03	3.178E 01	5.002E-02	2.981E 01	4.691E-02
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5.633E 01	3.847E 00	3.847E 00	-6.003E 02	-1.621E 03	-7.376E 02	-8.835E 02	3.209E 03	5.857E 00	9.219E-03	5.857E 00	9.219E-03
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5.653E 01	2.950E 00	3.655E 00	-5.968E 02	-1.626E 03	-7.397E 02	-8.862E 02	3.234E 03	4.492E 00	7.070E-03	5.565E 00	8.759E-03
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5.886E 01	4.537E 00	4.537E 00	-5.641E 02	-1.678E 03	-7.596E 02	-9.187E 02	3.532E 03	6.909E 00	1.087E-02	6.909E 00	1.087E-02
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6.513E 01	5.175E 00	1.040E 01	-5.633E 02	-1.786E 03	-7.915E 02	-9.948E 02	4.337E 03	7.880E 00	1.240E-02	1.583E 01	2.491E-02
6.517E 01	5.175E 00	1.041E 01	-5.633E 02	-1.787E 03	-7.917E 02	-9.954E 02	4.342E 03	7.880E 00	1.240E-02	1.565E 01	2.494E-02

READING = 0096 BLOCK = 190 TIME = 274.840 MACH 5.2 PT = 417.249 TT = 2221.9

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6.703E 01	5.537E 00	4.362E 00	-4.896E 02	-1.823E 03	-8.023E 02	-1.020E 03	4.583E 03	8.432E 00	1.327E-02	6.643E 00	1.046E-02
6.770E 01	4.135E 00	4.755E 00	-3.945E 02	-1.835E 03	-8.063E 02	-1.028E 03	4.665E 03	6.294E 00	9.907E-03	7.240E 00	1.140E-02
6.847E 01	2.520E 00	2.957E 00	-2.955E 02	-1.849E 03	-8.108E 02	-1.038E 03	4.760E 03	3.837E 00	6.040E-03	4.502E 00	7.086E-03
6.919E 01	2.482E 00	1.275E 00	-2.343E 02	-1.863E 03	-8.151E 02	-1.048E 03	4.848E 03	3.780E 00	5.949E-03	1.941E 00	3.056E-03
6.980E 01	2.450E 00	1.197E 00	-1.920E 02	-1.875E 03	-8.187E 02	-1.056E 03	4.922E 03	3.731E 00	5.872E-03	1.822E 00	2.868E-03
7.075E 01	1.768E 00	1.075E 00	-1.373E 02	-1.892E 03	-8.243E 02	-1.067E 03	5.036E 03	2.693E 00	4.238E-03	1.637E 00	2.576E-03
7.118E 01	1.460E 00	1.189E 00	-1.172E 02	-1.899E 03	-8.267E 02	-1.072E 03	5.088E 03	2.223E 00	3.499E-03	1.811E 00	2.850E-03
7.271E 01	8.680E-01	1.595E 00	-5.646E 01	-1.921E 03	-8.342E 02	-1.087E 03	5.273E 03	1.322E 00	2.080E-03	2.429E 00	3.823E-03
7.286E 01	8.100E-01	1.399E 00	-5.159E 01	-1.923E 03	-8.348E 02	-1.088E 03	5.290E 03	1.233E 00	1.941E-03	2.131E 00	3.353E-03
7.361E 01	7.018E-01	4.200E-01	-2.264E 01	-1.935E 03	-8.376E 02	-1.097E 03	5.374E 03	1.069E 00	1.682E-03	6.395E-01	1.007E-03
7.361E 01	7.012E-01	4.148E-01	-2.182E 01	-1.935E 03	-8.376E 02	-1.097E 03	5.375E 03	1.068E 00	1.681E-03	6.316E-01	9.941E-04
7.494E 01	5.100E-01	0.000	-9.024E 00	-1.957E 03	-8.417E 02	-1.116E 03	5.426E 03	7.766E-01	1.222E-03	0.000	0.000
7.779E 01	4.700E-01	0.000	1.057E 01	-1.968E 03	-8.474E 02	-1.120E 03	5.525E 03	7.157E-01	1.126E-03	0.000	0.000
8.169E 01	3.850E-01	0.000	2.884E 01	-1.828E 03	-8.512E 02	-9.770E 02	5.630E 03	5.862E-01	9.227E-04	0.000	0.000
8.450E 01	5.150E-01	0.000	3.884E 01	-1.669E 03	-8.534E 02	-8.159E 02	5.684E 03	7.842E-01	1.234E-03	0.000	0.000
8.736E 01	4.400E-01	0.000	5.036E 01	-1.673E 03	-8.573E 02	-8.159E 02	5.707E 03	6.700E-01	1.055E-03	0.000	0.000
8.736E 01	4.398E-01	0.000	5.037E 01	-1.673E 03	-8.573E 02	-8.159E 02	5.707E 03	6.698E-01	1.054E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.257E 02	1.257E 02	2.306E-03	5.045E-02
4.041E 01	1.907E-01	1.259E 02	2.810E-03	3.751E-02
4.138E 01	1.882E 01	1.447E 02	2.559E-03	5.175E-02
4.145E 01	1.126E 00	1.459E 02	2.513E-03	5.320E-02
4.150E 01	9.146E-01	1.468E 02	2.514E-03	5.398E-02
4.246E 01	1.678E 01	1.636E 02	2.591E-03	4.009E-02
4.417E 01	2.896E 01	1.925E 02	2.622E-03	5.237E-02
4.431E 01	2.307E 00	1.948E 02	2.737E-03	5.040E-02
4.480E 01	7.848E 00	2.027E 02	2.659E-03	5.414E-02
4.488E 01	1.270E 00	2.039E 02	2.646E-03	5.425E-02
4.626E 01	2.082E 01	2.248E 02	2.634E-03	5.173E-02
4.731E 01	1.497E 01	2.397E 02	2.592E-03	5.012E-02
4.741E 01	1.353E 00	2.411E 02	2.680E-03	4.897E-02
4.811E 01	9.429E 00	2.505E 02	2.580E-03	5.007E-02
4.886E 01	9.205E 00	2.597E 02	2.510E-03	4.514E-02
4.939E 01	6.162E 00	2.659E 02	2.465E-03	4.144E-02
5.080E 01	1.534E 01	2.812E 02	2.351E-03	2.727E-02
5.290E 01	2.135E 01	3.026E 02	2.561E-03	1.798E-02
5.340E 01	4.598E 00	3.072E 02	2.320E-03	1.945E-02
5.415E 01	6.200E 00	3.134E 02	2.265E-03	1.787E-02
5.491E 01	5.912E 00	3.193E 02	2.243E-03	1.645E-02
5.576E 01	6.319E 00	3.256E 02	2.229E-03	1.419E-02
5.633E 01	2.496E 00	3.281E 02	2.165E-03	1.231E-02
5.639E 01	3.199E-01	3.284E 02	2.274E-03	1.081E-02
5.653E 01	8.107E-01	3.292E 02	2.180E-03	1.094E-02
5.661E 01	4.860E-01	3.297E 02	2.457E-03	1.066E-02
5.689E 01	1.709E 00	3.314E 02	2.199E-03	1.082E-02
5.711E 01	1.286E 00	3.327E 02	2.151E-03	1.200E-02
5.784E 01	3.960E 00	3.367E 02	2.193E-03	1.503E-02
5.886E 01	5.447E 00	3.421E 02	2.127E-03	1.376E-02
6.087E 01	1.123E 01	3.533E 02	2.125E-03	8.572E-03
6.229E 01	8.149E 00	3.615E 02	2.379E-03	2.146E-02
6.475E 01	1.366E 01	3.751E 02	2.548E-03	2.103E-02
6.513E 01	2.063E 00	3.772E 02	2.605E-03	1.714E-02
6.517E 01	2.164E-01	3.774E 02	2.519E-03	1.812E-02
6.537E 01	1.064E 00	3.785E 02	2.518E-03	1.816E-02
6.703E 01	8.156E 00	3.866E 02	2.413E-03	1.340E-02
6.770E 01	2.721E 00	3.894E 02	2.388E-03	1.243E-02
6.847E 01	2.719E 00	3.921E 02	2.291E-03	8.844E-03
6.919E 01	1.983E 00	3.941E 02	2.218E-03	6.734E-03
6.980E 01	1.475E 00	3.955E 02	2.210E-03	6.582E-03
7.075E 01	2.095E 00	3.976E 02	2.162E-03	5.481E-03
7.118E 01	8.607E-01	3.985E 02	2.148E-03	5.201E-03
7.271E 01	2.911E 00	4.014E 02	2.132E-03	4.920E-03
7.286E 01	2.570E-01	4.017E 02	2.113E-03	4.542E-03
7.361E 01	9.916E-01	4.027E 02	1.999E-03	2.751E-03
7.361E 01	1.487E-03	4.027E 02	1.998E-03	2.741E-03
7.494E 01	4.609E-01	4.031E 02	1.979E-03	2.557E-03
7.779E 01	8.202E-01	4.039E 02	1.958E-03	2.395E-03
8.169E 01	7.932E-01	4.047E 02	1.915E-03	2.051E-03
8.450E 01	4.240E-01	4.052E 02	1.951E-03	2.533E-03
8.736E 01	1.831E-01	4.053E 02	1.917E-03	2.241E-03
8.736E 01	0.000	4.053E 02	1.917E-03	2.241E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-342.	(LBF)
MEASURED THRUST	262.	(LBF)
CALCULATED SPECIFIC IMPULSE	-1677.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1288.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.1129	
MEASURED THRUST COEFFICIENT	0.0868	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	4892.	(LBF)
NET THRUST	-237.	(LBF)
SPECIFIC IMPULSE	-1164.	(LBF-SEC/LBM)
THRUST COEFFICIENT	-.0784	

MOMENTUM AND FORCES

INLET FRICTION DRAG	125.7	(LBF)
INLET MOMENTUM CHANGE	******	(LBF)
COMBUSTOR FRICTION DRAG	251.5	(LBF)
COMBUSTOR STRUT DRAG	-13.47	(LBF)
COMBUSTOR MOMENTUM CHANGE	134.	(LBF)
NOZZLE FRICTION DRAG	28.13	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	586.	(LBF)
NOZZLE PRESSURE INTEGRAL	614.	(LBF)
EXTERNAL FRICTION DRAG	42.19	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1267.	(LBF)
TOTAL EXTERNAL DRAG	-1309.	(LBF)
TOTAL STRUT DRAG	-13.47	(LBF)
CAVITY FORCE	-1384.	(LBF)
CALCULATED LOAD CELL FORCE	-3034.	(LBF)
MEASURED LOAD CELL FORCE	-2427.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0.	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3866	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.271	(IN)
NOZZLE SHROUD TRAILING EDGE	73.611	(IN)
NOZZLE PLUG TRAILING EDGE	87.363	(IN)
STRUT LEADING EDGE	56.527	(IN)
STRUT TRAILING EDGE	65.127	(IN)
COMBUSTOR EXIT	65.127	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.8118	
ADDITIVE DRAG COEFFICIENT	0.0162	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2709	
DELTA PT2	0.1479	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3923	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2761	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8882	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9132	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9161	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8900	
ENTHALPY AT PO - SUPERSONIC	-11.20	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	1.27	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0063
EQUIVALENCE RATIO	0.210
COMBUSTOR EFFICIENCY	0.223
TOTAL PRESSURE RATIO	0.2580
COMBUSTOR EFFECTIVENESS	0.4254
INJECTOR DISCHARGE COEFFICIENTS	0.9167.

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9668
NOZZLE COEFFICIENT - CT	0.9053
PROCESS EFFICIENCY	0.8145
KINETIC ENERGY EFFICIENCY	0.9254

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.372	B
1C	44.300	
2A	48.847	
2C	46.250	
3A	54.137	
3B	56.322	
4	44.872	

Reading 96

t = 275.74 sec.

Injector 1B fuel flow measurement malfunctioned.

READING = 0096 BLOCK = 191 TIME = 275.740 MACH 5.2 PI = 417.499 TI = 2225.4

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	h	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	417.499	2225	443.0(572)	1.3186	28.859	2248											
0.000	0.587	375	-39.1(90)	1.3983	28.858	950	5.170	4912	1.780	0.14360	29.858	0.8118	4680	10.962	156.8		
SPIKE TIP NS		2	0 7														
0.600	22.187	2225	443.0(572)	1.3186	28.859	2248											
0.600	20.281	2178	429.4(558)	1.3203	28.859	2226	0.371	826	1.982	0.14360	29.858	0.8118	4983	1.845	166.9		
WIND TUNNEL		3	0 0														
0.000	417.499	2225	443.0(572)	1.3186	28.859	2248											
0.000	0.657	387	-36.2(93)	1.3985	28.858	965	5.072	4897	1.780	0.15521	32.270	0.8118	5048	11.811	156.4		
SPIKE TIP NS		4	0 0														
0.600	22.187	2225	443.0(572)	1.3186	28.859	2248											
0.600	19.914	2168	426.7(556)	1.3206	28.859	2221	0.407	905	1.982	0.15521	32.270	0.8118	5048	2.182	156.4		
INLET THROAT		5	0 4														
40.400	163.303	2173	428.1(557)	1.3204	28.859	2223											
40.400	21.367	1298	189.4(319)	1.3608	28.858	1744	1.981	3456	1.838	1.06278	32.270	0.1097	4066	61.688	126.0		
INLET UPNRBK		6	0 3														
40.400	163.303	2173	428.1(557)	1.3204	28.859	2223											
40.400	20.694	1287	186.6(316)	1.3615	28.858	1737	2.001	3476	1.838	1.04423	32.270	0.1207	4126	56.414	127.9		
INLET-DNNRBK		7	0 4														
40.400	115.149	2173	428.1(557)	1.3204	28.859	2223											
40.400	93.403	2065	397.8(527)	1.3242	28.859	2170	0.570	1236	1.862	1.04423	32.270	0.1207	4126	20.059	127.9		
COMBUSTOR	0	8	1 21														
40.410	122.883	2182	438.4(597)	1.3222	26.977	2306											
40.410	15.866	1296	181.0(340)	1.3624	26.977	1804	1.990	3589	1.967	1.15482	32.447	0.1097	4065	64.406	125.3	0.19	0.07
COMBUSTOR	0	9	2 21														
41.382	119.165	2113	435.8(577)	1.3253	26.915	2274											
41.382	23.518	1412	231.5(373)	1.3562	26.914	1881	1.701	3198	1.963	1.15427	32.447	0.1098	3886	57.360	119.8	0.19	0.01
COMBUSTOR	0	10	3 21														
41.447	114.819	2103	435.6(574)	1.3257	26.905	2270											
41.447	24.030	1414	234.7(374)	1.3562	26.905	1882	1.685	3170	1.962	1.15534	32.447	0.1096	3872	56.925	119.3	0.19	0.00
COMBUSTOR	0	11	4 21														
41.500	113.947	2101	435.5(574)	1.3258	26.904	2269											
41.500	24.621	1424	238.1(377)	1.3556	26.904	1889	1.664	3143	1.962	1.15498	32.447	0.1097	3861	56.406	119.0	0.19	0.00
COMBUSTOR	0	12	5 21														
42.460	87.294	2091	432.5(571)	1.3262	26.904	2264											
42.460	16.294	1363	221.0(359)	1.3591	26.903	1850	1.758	3252	1.980	1.14412	32.447	0.1107	3742	57.828	115.3	0.19	0.00
COMBUSTOR	0	13	6 21														
44.167	84.877	2209	426.9(605)	1.3205	27.044	2316											
44.167	25.619	1639	258.5(437)	1.3429	27.044	2012	1.443	2902	1.996	1.10113	32.447	0.1150	3682	49.662	113.5	0.19	0.14
COMBUSTOR	0	14	7 21														
44.310	91.470	2091	426.4(571)	1.3260	26.924	2263											
44.310	26.095	1524	260.3(405)	1.3500	26.924	1949	1.480	2883	1.977	1.10114	32.447	0.1150	3677	49.339	113.3	0.19	0.02
COMBUSTOR	0	15	8 21														
44.800	91.952	2068	424.9(564)	1.3270	26.907	2252											
44.800	27.720	1528	266.6(406)	1.3499	26.907	1952	1.441	2814	1.973	1.09674	32.447	0.1155	3658	47.956	112.7	0.19	0.00
COMBUSTOR	0	16	9 21														
44.882	91.768	2065	424.6(563)	1.3271	26.904	2250											
44.882	27.640	1525	266.5(405)	1.3501	26.904	1950	1.442	2812	1.973	1.09532	32.447	0.1157	3655	47.871	112.6	0.19	0.00
COMBUSTOR	0	17	10 21														
46.260	88.569	2050	420.3(559)	1.3277	26.904	2243											
46.260	26.294	1508	261.6(400)	1.3510	26.903	1940	1.452	2816	1.973	1.03399	32.447	0.1225	3665	45.256	113.0	0.19	0.00
COMBUSTOR	0	18	11 21														
47.310	82.262	2162	417.1(591)	1.3223	27.029	2243											
47.310	25.269	1610	254.4(428)	1.3445	27.029	1995	1.430	2853	1.992	0.96162	32.447	0.1317	3730	42.636	115.0	0.19	0.13

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	F	A/AC	MOMIM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
47.407	88.317	2057	416.8(560)	1.3272	26.922	2245											
47.407	25.657	1504	255.5(399)	1.3510	26.922	1937	1.467	2841	1.974	0.95478	32.447	0.1327	3756	42.161	115.2	0.19	0.02
COMBUSTOR	0	20	13 21														
48.110	89.648	2034	414.8(554)	1.3282	26.906	2234											
48.110	25.903	1485	254.5(394)	1.3522	26.906	1926	1.470	2832	1.970	0.89548	32.447	0.1415	3794	39.405	116.9	0.19	0.00
COMBUSTOR	0	21	14 21														
48.857	88.826	2026	412.8(551)	1.3285	26.904	2230											
48.857	21.671	1414	235.2(374)	1.3562	26.904	1883	1.584	2981	1.970	0.81520	32.447	0.1554	3869	37.765	119.2	0.19	0.00
COMBUSTOR	0	22	15 21														
49.387	88.307	2021	411.6(550)	1.3287	26.904	2228											
49.387	18.887	1363	220.9(359)	1.3591	26.903	1850	1.670	3089	1.969	0.76241	32.447	0.1662	3919	36.596	120.8	0.19	0.00
COMBUSTOR	0	23	16 21														
50.797	66.307	2204	408.7(602)	1.3201	27.101	2310											
50.797	10.462	1383	169.4(363)	1.3562	27.101	1855	1.865	3460	2.012	0.64977	32.447	0.1950	4012	34.940	123.6	0.19	0.20
COMBUSTOR	0	24	17 21														
52.897	68.717	2023	403.9(553)	1.3284	26.787	2233											
52.897	6.600	1100	139.2(289)	1.3744	26.787	1676	2.172	3639	1.997	0.53438	32.558	0.2379	4085	30.222	125.5	0.20	0.03
COMBUSTOR	0	25	18 21														
53.397	72.254	1991	403.2(544)	1.3299	26.757	2218											
53.397	6.767	1073	140.7(281)	1.3763	26.757	1657	2.188	3625	1.989	0.51255	32.558	0.2480	4098	28.870	125.9	0.20	0.00
COMBUSTOR	0	26	19 21														
54.147	70.727	1983	402.2(542)	1.3303	26.752	2214											
54.147	6.113	1045	134.4(274)	1.3779	26.752	1636	2.237	3661	1.989	0.48314	32.558	0.2631	4116	27.486	126.4	0.20	0.00
COMBUSTOR	0	27	20 21														
54.907	68.507	1979	401.3(540)	1.3304	26.752	2212											
54.907	5.450	1020	127.7(267)	1.3794	26.752	1617	2.289	3700	1.991	0.45688	32.558	0.2782	4133	26.274	126.9	0.20	0.00
COMBUSTOR	0	28	21 21														
55.760	64.676	1976	400.4(539)	1.3305	26.752	2211											
55.760	4.923	982	117.7(257)	1.3815	26.751	1588	2.368	3761	1.995	0.43100	32.558	0.2949	4148	25.194	127.4	0.20	0.00
COMBUSTOR	0	29	22 21														
56.332	56.187	2040	399.8(558)	1.3275	26.817	2241											
56.332	3.903	1017	107.6(266)	1.3791	26.817	1612	2.372	3824	2.014	0.34553	32.558	0.3679	4238	20.535	130.2	0.20	0.06
COMBUSTOR	0	30	23 21														
56.387	64.018	1984	399.8(542)	1.3302	26.761	2214											
56.387	4.371	980	114.2(256)	1.3815	26.761	1586	2.383	3780	1.997	0.34456	32.558	0.3689	4238	20.242	130.2	0.20	0.01
COMBUSTOR	0	31	24 21														
56.527	64.789	1975	399.7(539)	1.3306	26.753	2210											
56.527	4.295	968	113.2(253)	1.3823	26.753	1577	2.401	3786	1.995	0.34209	32.558	0.3716	4240	20.127	130.2	0.20	0.00
COMBUSTOR	0	32	25 21														
56.607	56.521	2029	399.6(555)	1.3280	26.808	2236											
56.607	3.604	987	102.5(258)	1.3808	26.808	1590	2.425	3856	2.012	0.34585	32.558	0.3675	4241	20.724	130.3	0.20	0.05
COMBUSTOR	0	33	26 21														
56.887	61.187	1981	399.4(541)	1.3303	26.760	2213											
56.887	3.300	917	97.6(239)	1.3850	26.760	1536	2.530	3886	2.000	0.34490	32.558	0.3686	4244	20.827	130.3	0.20	0.01
COMBUSTOR	0	34	27 21														
57.113	64.666	1973	399.2(539)	1.3306	26.753	2209											
57.113	3.788	934	104.3(244)	1.3841	26.753	1550	2.479	3841	1.994	0.34406	32.558	0.3695	4246	20.540	130.4	0.20	0.00
COMBUSTOR	0	35	28 21														
57.837	67.835	1970	398.5(538)	1.3308	26.752	2207											
57.837	5.350	1012	125.6(265)	1.3798	26.752	1611	2.294	3696	1.990	0.33873	32.558	0.3753	4254	19.455	130.7	0.20	0.00
COMBUSTOR	0	36	29 21														
58.857	68.174	1967	397.7(537)	1.3309	26.752	2206											
58.857	4.575	966	113.3(253)	1.3823	26.751	1576	2.394	3772	1.990	0.33657	32.558	0.3777	4260	19.731	130.6	0.20	0.00
COMBUSTOR	0	37	30 21														
60.867	66.938	1986	396.1(542)	1.3299	26.776	2215											
60.867	5.025	1008	117.3(264)	1.3799	26.776	1607	2.324	3735	1.994	0.34826	32.558	0.3650	4250	20.217	130.5	0.20	0.02

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 6														
62.287	38.317	2652	395.1(736)	1.2991	27.479	2497											
62.287	15.169	2132	235.3(578)	1.3171	27.479	2254	1.254	2826	2.099	0.35772	32.558	0.3553	4242	15.719	130.3	0.20	0.67
COMBUSTOR	0	39	32 5														
64.751	41.789	2359	393.4(650)	1.3124	27.169	2380											
64.751	9.814	1652	182.7(440)	1.3398	27.169	2013	1.613	3247	2.069	0.33908	32.558	0.3749	4228	17.108	129.9	0.20	0.39
COMBUSTOR	0	40	33 3														
65.127	39.826	2322	393.1(639)	1.3141	27.131	2365											
65.127	8.711	1595	177.2(424)	1.3430	27.130	1981	1.659	3287	2.069	0.31523	32.558	0.4032	4225	16.101	129.6	0.20	0.35
COMBUSTOR REGEN		41	34 2														
65.127	39.826	2510	451.4(697)	1.3077	27.130	2453											
65.127	9.555	1774	229.3(476)	1.3345	27.130	2083	1.601	3334	2.093	0.31523	32.558	0.4032	4361	16.335	133.9	0.20	0.35
NOZZLE AE		42	35 3														
87.363	39.826	2322	393.1(639)	1.3141	27.131	2365											
87.363	0.627	785	-44.1(202)	1.3889	27.130	1414	3.309	4678	2.069	0.06562	32.558	1.9371	5045	4.770	154.9	0.20	0.35
NOZZLE PO		43	36 3														
87.363	39.826	2322	393.1(639)	1.3141	27.131	2365											
87.363	0.657	795	-41.5(205)	1.3884	27.130	1422	3.278	4664	2.069	0.06760	32.558	1.8804	5036	4.899	154.7	0.20	0.35
NOZZLE AE REGEN		44	37 3														
87.363	39.826	2510	451.4(697)	1.3077	27.130	2453											
87.363	0.677	879	-19.4(227)	1.3843	27.130	1494	3.250	4854	2.093	0.06562	32.558	1.9371	5248	4.950	161.2	0.20	0.35
NOZZLE PO REGEN		45	38 3														
87.363	39.826	2510	451.4(697)	1.3077	27.130	2453											
87.363	0.657	872	-21.4(225)	1.3847	27.130	1487	3.270	4864	2.093	0.06432	32.558	1.9763	5255	4.862	161.4	0.20	0.35
FICTIVE COMBUSTR		65	58 0														
65.127	163.303	2973	393.1(832)	1.2846	27.848	2611											
65.127	0.657	737	-255.2(187)	1.3862	27.848	1351	4.216	5696	2.014	0.09141	32.558	1.3906	5998	8.091	184.2	0.20	1.00
FICTIVE NOZZLE		66	59 0														
87.363	33.762	2284	372.4(619)	1.3165	27.131	2332											
87.363	0.666	808	-38.2(208)	1.3878	27.130	1433	3.162	4533	2.072	0.06562	32.558	1.9371	4918	4.623	151.0	0.20	0.35

XABS	P-IB	P-CM	POA	WOA	W-IR	W-CM	CAVALL	P-IR/PSL	P-IB/PIO	P-OB/PSL	P-CM/PIO
6.981E-01	1.410E 00	0.000	-5.423E-01	0.000	0.000	0.000	2.470E-02	2.147E 00	3.377E-03	0.000	0.000
1.636E 01	1.410E 00	0.000	-4.690E 01	0.000	0.000	0.000	1.634E 02	2.147E 00	3.377E-03	0.000	0.000
3.070E 01	3.210E 00	0.000	-2.342E 02	0.000	0.000	0.000	5.053E 02	4.888E 00	7.669E-03	0.000	0.000
3.508E 01	4.254E 00	0.000	-4.761E 02	0.000	0.000	0.000	6.804E 02	6.479E 00	1.019E-02	0.000	0.000
3.526E 01	4.795E 00	6.048E 00	-5.516E 02	0.000	0.000	0.000	6.888E 02	7.302E 00	1.148E-02	9.211E 00	1.449E-02
3.527E 01	4.812E 00	6.033E 00	-5.517E 02	0.000	0.000	0.000	6.868E 02	7.329E 00	1.153E-02	9.188E 00	1.445E-02
3.555E 01	5.630E 00	5.327E 00	-5.615E 02	0.000	0.000	0.000	7.169E 02	8.574E 00	1.349E-02	8.113E 00	1.276E-02
3.594E 01	5.562E 00	4.356E 00	-5.836E 02	-2.072E 02	-2.072E 02	0.000	7.562E 02	8.470E 00	1.332E-02	6.625E 00	1.042E-02
3.606E 01	5.540E 00	5.183E 00	-5.914E 02	-2.087E 02	-2.087E 02	0.000	7.688E 02	8.437E 00	1.327E-02	7.894E 00	1.242E-02
3.648E 01	4.882E 00	8.020E 00	-6.075E 02	-2.137E 02	-2.137E 02	0.000	8.123E 02	7.435E 00	1.169E-02	1.221E 01	1.921E-02
3.701E 01	5.767E 00	1.160E 01	-6.247E 02	-2.621E 02	-2.205E 02	-4.164E 01	8.684E 02	8.783E 00	1.381E-02	1.767E 01	2.779E-02
3.740E 01	7.135E 00	1.421E 01	-6.427E 02	-2.850E 02	-2.256E 02	-5.943E 01	9.098E 02	1.087E 01	1.709E-02	2.164E 01	3.404E-02
3.803E 01	9.375E 00	1.616E 01	-6.935E 02	-3.223E 02	-2.344E 02	-8.791E 01	9.791E 02	1.428E 01	2.246E-02	2.465E 01	3.876E-02
3.842E 01	1.458E 01	1.739E 01	-7.341E 02	-3.457E 02	-2.405E 02	-1.052E 02	1.022E 03	2.221E 01	3.493E-02	2.648E 01	4.165E-02
3.875E 01	1.907E 01	1.894E 01	-7.783E 02	-3.667E 02	-2.466E 02	-1.201E 02	1.060E 03	2.905E 01	4.568E-02	2.884E 01	4.536E-02
3.889E 01	2.091E 01	1.957E 01	-7.950E 02	-3.755E 02	-2.493E 02	-1.262E 02	1.076E 03	3.185E 01	5.009E-02	2.981E 01	4.689E-02
3.901E 01	2.257E 01	2.061E 01	-8.094E 02	-3.855E 02	-2.519E 02	-1.316E 02	1.090E 03	3.438E 01	5.407E-02	3.139E 01	4.936E-02
3.940E 01	2.145E 01	2.385E 01	-8.405E 02	-4.096E 02	-2.608E 02	-1.488E 02	1.134E 03	3.267E 01	5.138E-02	3.632E 01	5.713E-02
3.950E 01	2.115E 01	1.995E 01	-8.457E 02	-4.167E 02	-2.634E 02	-1.533E 02	1.146E 03	3.221E 01	5.066E-02	3.039E 01	4.779E-02
3.980E 01	2.019E 01	5.375E 00	-8.757E 02	-4.442E 02	-2.741E 02	-1.701E 02	1.191E 03	3.074E 01	4.836E-02	8.186E 00	1.287E-02
4.000E 01	1.991E 01	5.369E 00	-8.883E 02	-4.524E 02	-2.775E 02	-1.750E 02	1.204E 03	3.032E 01	4.768E-02	8.176E 00	1.286E-02
4.040E 01	2.623E 01	5.347E 00	-9.364E 02	-4.820E 02	-2.901E 02	-1.919E 02	1.251E 03	3.994E 01	6.282E-02	8.143E 00	1.281E-02
4.041E 01	2.639E 01	5.347E 00	-9.375E 02	-4.827E 02	-2.904E 02	-1.923E 02	1.252E 03	4.018E 01	6.320E-02	8.142E 00	1.281E-02
4.138E 01	4.174E 01	5.294E 00	-1.098E 03	-5.663E 02	-3.253E 02	-2.410E 02	1.367E 03	6.357E 01	9.998E-02	8.062E 00	1.268E-02
4.145E 01	4.277E 01	5.291E 00	-1.110E 03	-5.726E 02	-3.278E 02	-2.448E 02	1.375E 03	6.513E 01	1.024E-01	8.057E 00	1.267E-02
4.150E 01	4.361E 01	5.630E 00	-1.121E 03	-5.779E 02	-3.300E 02	-2.479E 02	1.382E 03	6.642E 01	1.045E-01	8.574E 00	1.349E-02
4.246E 01	2.085E 01	1.174E 01	-1.223E 03	-6.759E 02	-3.695E 02	-3.064E 02	1.496E 03	3.175E 01	4.994E-02	1.787E 01	2.811E-02
4.417E 01	2.864E 01	2.259E 01	-1.254E 03	-8.562E 02	-4.356E 02	-4.206E 02	1.703E 03	4.362E 01	6.861E-02	3.441E 01	5.412E-02
4.431E 01	2.930E 01	2.289E 01	-1.257E 03	-8.713E 02	-4.406E 02	-4.307E 02	1.720E 03	4.462E 01	7.018E-02	3.486E 01	5.483E-02
4.480E 01	3.154E 01	2.390E 01	-1.268E 03	-9.221E 02	-4.571E 02	-4.650E 02	1.780E 03	4.803E 01	7.554E-02	3.640E 01	5.725E-02
4.488E 01	3.121E 01	2.407E 01	-1.270E 03	-9.304E 02	-4.597E 02	-4.707E 02	1.790E 03	4.753E 01	7.475E-02	3.666E 01	5.765E-02
4.626E 01	2.567E 01	2.692E 01	-1.238E 03	-1.064E 03	-5.031E 02	-5.663E 02	1.959E 03	3.909E 01	6.148E-02	4.099E 01	6.448E-02
4.731E 01	2.145E 01	2.909E 01	-1.159E 03	-1.173E 03	-5.343E 02	-6.390E 02	2.090E 03	3.267E 01	5.138E-02	4.430E 01	6.967E-02
4.741E 01	2.203E 01	2.929E 01	-1.150E 03	-1.183E 03	-5.371E 02	-6.457E 02	2.102E 03	3.354E 01	5.276E-02	4.460E 01	7.015E-02
4.811E 01	2.621E 01	2.559E 01	-1.084E 03	-1.249E 03	-5.571E 02	-6.917E 02	2.189E 03	3.992E 01	6.278E-02	3.898E 01	6.130E-02
4.886E 01	2.167E 01	2.167E 01	-1.000E 03	-1.312E 03	-5.775E 02	-7.347E 02	2.283E 03	3.300E 01	5.191E-02	3.300E 01	5.191E-02
4.939E 01	1.889E 01	1.889E 01	-9.442E 02	-1.353E 03	-5.916E 02	-7.614E 02	2.349E 03	2.876E 01	4.524E-02	2.876E 01	4.524E-02
5.080E 01	1.046E 01	1.046E 01	-8.357E 02	-1.446E 03	-6.272E 02	-8.190E 02	2.527E 03	1.593E 01	2.506E-02	1.593E 01	2.506E-02
5.290E 01	6.600E 00	6.600E 00	-7.418E 02	-1.556E 03	-6.753E 02	-8.809E 02	2.743E 03	1.005E 01	1.581E-02	1.005E 01	1.581E-02
5.340E 01	6.767E 00	6.767E 00	-7.244E 02	-1.579E 03	-6.859E 02	-8.926E 02	2.857E 03	1.030E 01	1.621E-02	1.030E 01	1.621E-02
5.415E 01	6.113E 00	6.113E 00	-6.995E 02	-1.610E 03	-7.011E 02	-9.092E 02	2.953E 03	9.304E 00	1.464E-02	9.309E 00	1.464E-02
5.491E 01	5.450E 00	5.450E 00	-6.771E 02	-1.640E 03	-7.158E 02	-9.242E 02	3.050E 03	8.300E 00	1.305E-02	8.300E 00	1.305E-02
5.576E 01	4.523E 00	4.523E 00	-6.557E 02	-1.670E 03	-7.313E 02	-9.391E 02	3.160E 03	6.889E 00	1.083E-02	6.889E 00	1.083E-02
5.633E 01	3.903E 00	3.903E 00	-5.637E 02	-1.686E 03	-7.404E 02	-9.480E 02	3.209E 03	5.943E 00	9.348E-03	5.943E 00	9.348E-03
5.639E 01	4.900E 00	3.843E 00	-5.626E 02	-1.690E 03	-7.411E 02	-9.488E 02	3.216E 03	7.462E 00	1.174E-02	5.852E 00	9.205E-03
5.653E 01	4.900E 00	3.691E 00	-5.601E 02	-1.694E 03	-7.431E 02	-9.508E 02	3.234E 03	7.462E 00	1.174E-02	5.621E 00	8.840E-03
5.661E 01	3.604E 00	3.604E 00	-5.587E 02	-1.696E 03	-7.442E 02	-9.520E 02	3.244E 03	5.489E 00	8.632E-03	5.489E 00	8.632E-03
5.689E 01	3.300E 00	3.300E 00	-5.542E 02	-1.704E 03	-7.479E 02	-9.563E 02	3.280E 03	5.026E 00	7.904E-03	5.026E 00	7.904E-03
5.711E 01	3.788E 00	3.788E 00	-5.507E 02	-1.711E 03	-7.508E 02	-9.598E 02	3.309E 03	5.768E 00	9.072E-03	5.768E 00	9.072E-03
5.764E 01	5.350E 00	5.350E 00	-5.383E 02	-1.731E 03	-7.597E 02	-9.713E 02	3.402E 03	8.147E 00	1.281E-02	8.147E 00	1.281E-02
5.886E 01	4.575E 00	4.575E 00	-5.208E 02	-1.756E 03	-7.710E 02	-9.872E 02	3.532E 03	6.967E 00	1.096E-02	6.967E 00	1.096E-02
6.087E 01	5.025E 00	5.025E 00	-5.257E 02	-1.809E 03	-7.895E 02	-1.020E 03	3.790E 03	7.653E 00	1.204E-02	7.653E 00	1.204E-02
6.229E 01	1.517E 01	1.517E 01	-5.257E 02	-1.843E 03	-8.010E 02	-1.042E 03	3.972E 03	2.310E 01	3.633E-02	2.310E 01	3.633E-02
6.475E 01	9.814E 00	9.814E 00	-5.257E 02	-1.900E 03	-8.206E 02	-1.079E 03	4.289E 03	1.495E 01	2.351E-02	1.495E 01	2.351E-02
6.513E 01	8.425E 00	8.997E 00	-5.257E 02	-1.909E 03	-8.236E 02	-1.085E 03	4.337E 03	1.283E 01	2.018E-02	1.370E 01	2.155E-02
6.517E 01	8.425E 00	8.910E 00	-5.257E 02	-1.909E 03	-8.239E 02	-1.086E 03	4.342E 03	1.283E 01	2.018E-02	1.357E 01	2.134E-02

READING = 0096 BLOCK = 191 TIME = 275.740 MACH 5.2 PT = 417.499 TT = 2225.4 PAGE 5

XABS	P-IB	P-OB	PDA	QOX	W-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.537E 01	8.194E 00	8.475E 00	-5.257E 02	-1.914E 03	-8.255E 02	-1.089E 03	4.368E 03	1.248E 01	1.963E-02	1.291E 01	2.030E-02
6.703E 01	6.275E 00	4.350E 00	-4.508E 02	-1.957E 03	-8.395E 02	-1.118E 03	4.563E 03	9.556E 00	1.503E-02	6.625E 00	1.042E-02
6.770E 01	4.951E 00	7.417E 00	-3.345E 02	-1.976E 03	-8.456E 02	-1.132E 03	4.665E 03	7.540E 00	1.186E-02	1.130E 01	1.777E-02
6.847E 01	3.430E 00	4.243E 00	-1.963E 02	-2.003E 03	-8.528E 02	-1.150E 03	4.760E 03	5.224E 00	8.216E-03	6.462E 00	1.016E-02
6.919E 01	3.094E 00	1.275E 00	-1.185E 02	-2.024E 03	-8.592E 02	-1.165E 03	4.848E 03	4.712E 00	7.412E-03	1.942E 00	3.054E-03
6.980E 01	2.810E 00	1.193E 00	-7.015E 01	-2.041E 03	-8.642E 02	-1.176E 03	4.922E 03	4.279E 00	6.731E-03	1.817E 00	2.857E-03
7.075E 01	1.987E 00	1.065E 00	-1.016E 01	-2.061E 03	-8.715E 02	-1.189E 03	5.036E 03	3.027E 00	4.760E-03	1.622E 00	2.551E-03
7.118E 01	1.615E 00	1.264E 00	1.167E 01	-2.069E 03	-8.745E 02	-1.194E 03	5.088E 03	2.459E 00	3.868E-03	1.924E 00	3.026E-03
7.271E 01	9.411E-01	1.970E 00	8.012E 01	-2.099E 03	-8.836E 02	-1.215E 03	5.273E 03	1.433E 00	2.254E-03	3.000E 00	4.719E-03
7.286E 01	8.750E-01	1.712E 00	8.580E 01	-2.102E 03	-8.844E 02	-1.217E 03	5.290E 03	1.333E 00	2.096E-03	2.607E 00	4.100E-03
7.361E 01	7.542E-01	4.200E-01	1.188E 02	-2.120E 03	-8.877E 02	-1.232E 03	5.374E 03	1.149E 00	1.806E-03	6.396E-01	1.006E-03
7.361E 01	7.536E-01	4.131E-01	1.196E 02	-2.120E 03	-8.878E 02	-1.232E 03	5.375E 03	1.148E 00	1.805E-03	6.291E-01	9.895E-04
7.494E 01	5.400E-01	0.000	1.333E 02	-2.155E 03	-8.926E 02	-1.263E 03	5.426E 03	8.224E-01	1.293E-03	0.000	0.000
7.779E 01	4.800E-01	0.000	1.537E 02	-2.156E 03	-8.996E 02	-1.256E 03	5.525E 03	7.310E-01	1.150E-03	0.000	0.000
8.169E 01	4.150E-01	0.000	1.728E 02	-2.355E 03	-9.042E 02	-1.451E 03	5.630E 03	6.320E-01	9.940E-04	0.000	0.000
8.450E 01	5.700E-01	0.000	1.838E 02	-2.577E 03	-9.067E 02	-1.670E 03	5.684E 03	8.680E-01	1.365E-03	0.000	0.000
8.736E 01	4.600E-01	0.000	1.962E 02	-2.581E 03	-9.115E 02	-1.670E 03	5.707E 03	7.005E-01	1.102E-03	0.000	0.000
8.736E 01	4.598E-01	0.000	1.962E 02	-2.581E 03	-9.115E 02	-1.670E 03	5.707E 03	7.002E-01	1.101E-03	0.000	0.000

X	UDRAG	CDRAG	CF	HC
4.040E 01	1.250E 02	1.250E 02	2.310E-03	5.050E-02
4.041E 01	1.846E-01	1.260E 02	2.706E-03	3.777E-02
4.138E 01	1.870E 01	1.447E 02	2.557E-03	5.203E-02
4.145E 01	1.122E 00	1.459E 02	2.515E-03	5.343E-02
4.150E 01	9.117E-01	1.468E 02	2.516E-03	5.421E-02
4.246E 01	1.675E 01	1.635E 02	2.593E-03	5.900E-02
4.417E 01	2.894E 01	1.925E 02	2.621E-03	5.214E-02
4.431E 01	2.302E 00	1.948E 02	2.730E-03	5.070E-02
4.480E 01	7.834E 00	2.026E 02	2.656E-03	5.390E-02
4.488E 01	1.269E 00	2.039E 02	2.644E-03	5.401E-02
4.626E 01	2.079E 01	2.247E 02	2.630E-03	5.173E-02
4.731E 01	1.493E 01	2.396E 02	2.589E-03	5.027E-02
4.741E 01	1.349E 00	2.409E 02	2.661E-03	4.905E-02
4.811E 01	9.392E 00	2.503E 02	2.578E-03	5.033E-02
4.886E 01	9.162E 00	2.595E 02	2.505E-03	4.521E-02
4.939E 01	6.136E 00	2.656E 02	2.459E-03	4.139E-02
5.080E 01	1.525E 01	2.809E 02	2.342E-03	2.779E-02
5.290E 01	2.115E 01	3.020E 02	2.533E-03	1.814E-02
5.340E 01	4.552E 00	3.066E 02	2.302E-03	1.957E-02
5.415E 01	6.142E 00	3.127E 02	2.247E-03	1.825E-02
5.491E 01	5.851E 00	3.186E 02	2.224E-03	1.670E-02
5.576E 01	6.252E 00	3.248E 02	2.207E-03	1.447E-02
5.633E 01	2.461E 00	3.273E 02	2.112E-03	1.257E-02
5.639E 01	3.097E-01	3.276E 02	2.200E-03	1.327E-02
5.653E 01	7.762E-01	3.284E 02	2.128E-03	1.338E-02
5.661E 01	4.863E-01	3.288E 02	2.544E-03	1.043E-02
5.689E 01	1.747E 00	3.306E 02	2.170E-03	1.086E-02
5.711E 01	1.274E 00	3.319E 02	2.101E-03	1.223E-02
5.784E 01	3.900E 00	3.358E 02	2.110E-03	1.558E-02
5.886E 01	5.363E 00	3.411E 02	2.078E-03	1.398E-02
6.087E 01	1.070E 01	3.516E 02	2.076E-03	1.498E-02
6.229E 01	7.320E 00	3.592E 02	2.395E-03	2.824E-02
6.475E 01	1.339E 01	3.725E 02	2.765E-03	1.860E-02
6.513E 01	2.148E 00	3.747E 02	2.599E-03	1.843E-02
6.517E 01	2.152E-01	3.749E 02	2.611E-03	1.865E-02
6.537E 01	1.071E 00	3.760E 02	2.601E-03	1.840E-02
6.703E 01	8.218E 00	3.842E 02	2.489E-03	1.370E-02
6.770E 01	2.929E 00	3.871E 02	2.511E-03	1.509E-02
6.847E 01	3.150E 00	3.903E 02	2.414E-03	1.092E-02
6.919E 01	2.257E 00	3.925E 02	2.307E-03	7.318E-03
6.980E 01	1.576E 00	3.941E 02	2.290E-03	6.665E-03
7.075E 01	2.193E 00	3.963E 02	2.241E-03	5.629E-03
7.118E 01	8.998E-01	3.972E 02	2.227E-03	5.307E-03
7.271E 01	3.136E 00	4.003E 02	2.223E-03	5.416E-03
7.286E 01	2.835E-01	4.006E 02	2.202E-03	4.905E-03
7.361E 01	1.063E 00	4.017E 02	2.066E-03	2.763E-03
7.361E 01	1.532E-03	4.017E 02	2.065E-03	2.750E-03
7.494E 01	4.766E-01	4.022E 02	2.048E-03	2.591E-03
7.779E 01	8.423E-01	4.030E 02	2.020E-03	2.361E-03
8.169E 01	8.193E-01	4.038E 02	1.986E-03	2.104E-03
8.450E 01	4.507E-01	4.043E 02	2.027E-03	2.653E-03
8.736E 01	1.926E-01	4.045E 02	1.983E-03	2.249E-03
8.736E 01	0.000	4.045E 02	1.983E-03	2.240E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-211.	(LBF)
MEASURED THRUST	695.	(LBF)
CALCULATED SPECIFIC IMPULSE	-1091.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3596.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.0697	
MEASURED THRUST COEFFICIENT	0.2298	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5116.	(LBF)
NET THRUST	-13.	(LBF)
SPECIFIC IMPULSE	-67.	(LBF-SEC/LBM)
THRUST COEFFICIENT	-.0043	

MOMENTUM AND FORCES

INLET FRICTION DRAG	125.8	(LBF)
INLET MOMENTUM CHANGE	******	(LBF)
COMBUSTOR FRICTION DRAG	248.8	(LBF)
COMBUSTOR STRUT DRAG	2.62	(LBF)
COMBUSTOR MOMENTUM CHANGE	159.	(LBF)
NOZZLE FRICTION DRAG	29.77	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	692.	(LBF)
NOZZLE PRESSURE INTEGRAL	722.	(LBF)
EXTERNAL FRICTION DRAG	42.07	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1267.	(LBF)
TOTAL EXTERNAL DRAG	-1309.	(LBF)
TOTAL STRUT DRAG	2.62	(LBF)
CAVITY FORCE	-1927.	(LBF)
CALCULATED LOAD CELL FORCE	-2947.	(LBF)
MEASURED LOAD CELL FORCE	-2038.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3866	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.271	(IN)
NOZZLE SHROUD TRAILING EDGE	73.611	(IN)
NOZZLE PLUG TRAILING EDGE	67.363	(IN)
STRUT LEADING EDGE	56.527	(IN)
STRUT TRAILING EDGE	65.127	(IN)
COMBUSTOR EXIT	65.127	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.8118	
ADDITIVE DRAG COEFFICIENT	0.0162	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2706	
DELTA PT2	0.1480	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3911	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2758	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8879	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9130	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9161	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8901	
ENTHALPY AT PO - SUPERSONIC	-10.68	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	1.55	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0060
EQUIVALENCE RATIO	0.200
COMBUSTOR EFFICIENCY	0.355
TOTAL PRESSURE RATIO	0.2439
COMBUSTOR EFFECTIVENESS	0.4987

INJECTOR DISCHARGE COEFFICIENTS 0.9035,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9748
NOZZLE COEFFICIENT - CT	0.9119
PROCESS EFFICIENCY	0.9867
KINETIC ENERGY EFFICIENCY	0.9466

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.372	B
1C	44.300	
2A	48.847	
2C	46.250	
3A	54.137	
3B	56.322	
4	44.872	

Reading 96

t = 294.64 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	417.499	2227	444.0(573)	1.3188	28.814	2251											
0.000	0.587	375	-39.1(90)	1.3982	28.814	951	5.170	4917	1.781	0.14363	29.881	0.8123	4689	10.975	156.9		
SPIKE TIP NS		2	0 7														
0.600	22.142	2227	444.0(573)	1.3169	28.814	2251											
0.600	20.247	2179	430.3(559)	1.3205	28.814	2228	0.372	829	1.983	0.14363	29.881	0.8123	4982	1.851	166.7		
WIND TUNNEL		3	0 0														
0.000	417.499	2227	444.0(573)	1.3188	28.814	2251											
0.000	0.655	387	-36.3(93)	1.3985	28.814	966	5.075	4902	1.781	0.15487	32.220	0.8123	5046	11.798	156.6		
SPIKE TIP NS		4	0 0														
0.600	22.162	2227	444.0(573)	1.3189	28.814	2251											
0.600	19.891	2170	427.6(557)	1.3209	28.814	2224	0.407	906	1.983	0.15487	32.220	0.8123	5045	2.180	156.6		
INLET THROAT		5	0 3														
40.400	157.622	2173	428.6(558)	1.3207	28.814	2225											
40.400	22.013	1320	195.4(325)	1.3598	28.814	1760	1.941	3416	1.841	1.06228	29.881	0.1098	3792	56.388	126.9		
INLET UPNRSK		6	0 3														
40.400	157.622	2173	428.6(558)	1.3207	28.814	2225											
40.400	18.511	1260	180.0(310)	1.3635	28.814	1722	2.048	3527	1.841	0.96571	29.881	0.1208	3848	52.929	128.8		
INLET DNNRSK		7	0 4														
40.400	107.542	2173	428.6(558)	1.3207	28.814	2225											
40.400	87.722	2068	398.8(529)	1.3244	28.814	2174	0.562	1221	1.867	0.96571	29.881	0.1208	3848	18.323	128.8		
COMBUSTOR	0	8	1 3														
40.410	157.439	2173	428.6(558)	1.3207	28.814	2225											
40.410	22.028	1320	195.6(325)	1.3598	28.814	1760	1.940	3414	1.841	1.06215	29.881	0.1098	3791	56.359	126.9		
COMBUSTOR	0	9	2 4														
41.376	132.328	2164	426.1(555)	1.3210	28.814	2221											
41.376	25.804	1434	225.5(355)	1.3529	28.814	1830	1.731	3167	1.852	1.06242	29.881	0.1098	3668	52.297	122.7		
COMBUSTOR	0	10	3 4														
41.441	130.527	2164	425.9(555)	1.3211	28.814	2221											
41.441	26.184	1445	228.2(358)	1.3523	28.814	1836	1.713	3145	1.853	1.06279	29.881	0.1098	3657	51.939	122.4		
COMBUSTOR	0	11	4 4														
41.500	128.956	2163	425.7(555)	1.3211	28.814	2221											
41.500	26.555	1454	230.7(360)	1.3518	28.814	1842	1.696	3123	1.854	1.06362	29.881	0.1097	3647	51.626	122.0		
COMBUSTOR	0	12	5 5														
42.460	113.080	2152	422.6(552)	1.3215	28.814	2215											
42.460	30.221	1547	255.5(385)	1.3466	28.814	1896	1.525	2891	1.861	1.05305	29.881	0.1108	3543	47.315	118.6		
COMBUSTOR	0	13	6 5														
44.161	100.212	2132	416.8(546)	1.3222	28.814	2205											
44.161	32.575	1611	272.6(402)	1.3433	28.814	1932	1.390	2686	1.867	1.01304	29.881	0.1152	3456	42.294	115.7		
COMBUSTOR	0	14	7 5														
44.310	99.336	2130	416.3(546)	1.3222	28.814	2205											
44.310	33.002	1618	274.6(404)	1.3429	28.814	1936	1.375	2663	1.867	1.01245	29.881	0.1152	3447	41.893	115.4		
COMBUSTOR	0	15	8 5														
44.800	96.226	2125	414.8(544)	1.3224	28.814	2202											
44.800	34.675	1648	282.6(412)	1.3414	28.814	1953	1.317	2572	1.869	1.00914	29.881	0.1156	3415	40.330	114.3		
COMBUSTOR	0	16	9 5														
44.876	95.730	2124	414.5(544)	1.3225	28.814	2201											
44.876	34.946	1652	283.9(413)	1.3412	28.814	1955	1.308	2557	1.869	1.00821	29.881	0.1157	3410	40.060	114.1		
COMBUSTOR	0	17	10 5														
45.601	91.848	2117	412.5(542)	1.3227	28.814	2198											
45.601	35.754	1674	289.7(419)	1.3401	28.814	1967	1.260	2479	1.871	0.98755	29.881	0.1181	3384	38.048	113.3		
COMBUSTOR	0	18	11 5														
46.260	89.398	2111	410.6(540)	1.3229	28.814	2195											
46.260	33.395	1651	283.6(413)	1.3412	28.814	1955	1.291	2523	1.872	0.95130	29.881	0.1226	3392	37.298	113.5		

READING = 0096 BLOCK = 212 TIME = 294.640 MACH 5.2 PT = 417.499 TT = 2227.5

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	5														
47.310	88.273	2101	408.2(	537)	1.3232	28.814	2190											
47.310	27.450	1569	261.3(	391)	1.3454	28.814	1908											
								1.421	2712	1.871	0.88478	29.881	0.1319	3445	37.284	115.3		
COMBUSTOR	0	20	13	5														
47.401	88.305	2101	408.0(	537)	1.3233	28.814	2190											
47.401	26.956	1560	259.0(	388)	1.3459	28.814	1903	1.435	2730	1.871	0.87965	29.881	0.1326	3452	37.326	115.5		
COMBUSTOR	0	21	14	5														
48.110	88.486	2095	406.4(	535)	1.3235	28.814	2187											
48.110	22.846	1490	240.3(	370)	1.3497	28.814	1863	1.547	2883	1.870	0.82396	29.881	0.1416	3506	36.910	117.3		
COMBUSTOR	0	22	15	4														
48.851	86.708	2090	405.0(	534)	1.3236	28.814	2185											
48.851	18.996	1424	222.6(	352)	1.3535	28.814	1824	1.655	3019	1.871	0.75073	29.881	0.1554	3560	35.219	119.1		
COMBUSTOR	0	23	16	5														
49.381	84.707	2087	404.1(	533)	1.3238	28.814	2183											
49.381	16.913	1388	213.3(	343)	1.3557	28.814	1802	1.715	3090	1.872	0.70211	29.881	0.1662	3590	33.718	120.1		
COMBUSTOR	0	24	17	4														
50.791	80.208	2079	401.9(	531)	1.3240	28.814	2179											
50.791	12.940	1307	192.0(	322)	1.3606	28.814	1752	1.850	3241	1.875	0.59839	29.881	0.1950	3656	30.137	122.4		
COMBUSTOR	0	25	18	4														
52.891	75.305	2069	399.0(	528)	1.3244	28.814	2174											
52.891	9.380	1213	167.8(	297)	1.3664	28.814	1691	2.011	3401	1.878	0.49045	29.881	0.2379	3731	25.926	124.8		
COMBUSTOR	0	26	19	4														
53.391	73.967	2067	398.5(	528)	1.3245	28.814	2173											
53.391	8.818	1198	163.8(	293)	1.3674	28.814	1681	2.038	3427	1.879	0.47041	29.881	0.2480	3743	25.050	125.3		
COMBUSTOR	0	27	20	4														
54.141	72.046	2065	397.6(	527)	1.3246	28.814	2172											
54.141	8.089	1177	158.5(	288)	1.3687	28.814	1667	2.075	3460	1.881	0.44342	29.881	0.2631	3759	23.845	125.8		
COMBUSTOR	0	28	21	5														
54.901	70.189	2062	397.2(	526)	1.3246	28.814	2171											
54.901	7.467	1159	153.8(	283)	1.3699	28.814	1655	2.109	3489	1.882	0.41932	29.881	0.2782	3773	22.739	126.3		
COMBUSTOR	0	29	22	4														
55.760	68.250	2060	396.5(	526)	1.3247	28.814	2170											
55.760	6.870	1140	149.1(	279)	1.3710	28.814	1642	2.143	3519	1.884	0.39501	29.881	0.2950	3787	21.622	126.7		
COMBUSTOR	0	30	23	4														
56.326	59.159	2058	396.1(	525)	1.3248	28.814	2169											
56.326	5.201	1098	138.4(	268)	1.3737	28.814	1613	2.226	3591	1.893	0.31713	29.881	0.3679	3825	17.697	128.0		
COMBUSTOR	0	31	24	5														
56.381	59.129	2058	396.1(	525)	1.3248	28.814	2169											
56.381	5.179	1097	138.1(	268)	1.3737	28.814	1612	2.228	3593	1.893	0.31629	29.881	0.3689	3826	17.660	128.0		
COMBUSTOR	0	32	25	5														
56.521	58.973	2058	396.0(	525)	1.3248	28.814	2169											
56.521	5.122	1094	137.4(	267)	1.3739	28.814	1611	2.233	3597	1.893	0.31396	29.881	0.3716	3828	17.550	128.1		
COMBUSTOR	0	33	26	4														
56.601	59.787	2058	395.9(	525)	1.3248	28.814	2169											
56.601	5.168	1093	137.0(	267)	1.3740	28.814	1610											
								2.236	3599	1.892	0.31742	29.881	0.3675	3829	17.755	128.1		
COMBUSTOR	0	34	27	4														
56.881	60.103	2057	395.6(	525)	1.3248	28.814	2169											
56.881	5.118	1088	135.6(	265)	1.3743	28.814	1606	2.245	3607	1.892	0.31637	29.881	0.3688	3833	17.732	128.3		
COMBUSTOR	0	35	28	4														
57.107	60.369	2057	395.6(	525)	1.3248	28.814	2168											
57.107	5.086	1084	135.0(	264)	1.3745	28.814	1604	2.252	3612	1.892	0.31583	29.881	0.3694	3835	17.727	128.4		
COMBUSTOR	0	36	29	4														
57.831	60.352	2055	395.2(	525)	1.3249	28.814	2168											
57.831	4.948	1076	132.7(	262)	1.3751	28.814	1597	2.269	3624	1.891	0.31089	29.881	0.3753	3842	17.510	128.6		
COMBUSTOR	0	37	30	4														
58.651	60.452	2053	394.7(	524)	1.3250	28.814	2167											
58.851	4.884	1070	131.4(	261)	1.3754	28.814	1594	2.278	3630	1.891	0.30890	29.881	0.3777	3844	17.426	128.6		

READING = 0096 BLOCK = 212 TIME = 290.640 MACH 5.2 PT = 417.499 TT = 2227.5

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	35	31 5														
60.261	61.299	2051	394.0(523)	1.3251	28.814	2165											
60.661	5.120	1078	133.4(263)	1.3749	28.814	1599	2.257	3611	1.690	0.31965	29.881	0.3650	3832	17.936	128.2		
COMBUSTOR	0	39	32 5														
62.281	61.946	2049	393.6(523)	1.3251	28.814	2165											
62.281	5.317	1086	135.3(265)	1.3744	28.814	1605	2.241	3595	1.889	0.32831	29.881	0.3553	3823	18.304	127.9		
NOZZLE AE		40	33 4														
87.357	61.946	2049	393.6(523)	1.3251	28.814	2165											
87.357	0.372	514	-5.4(124)	1.3969	28.814	1114	4.011	4468	1.889	0.06023	29.881	1.0371	4334	4.182	145.1		
NOZZLE PO		41	34 4														
87.357	61.946	2049	393.6(523)	1.3251	28.814	2165											
87.337	0.587	588	11.9(141)	1.3979	28.814	1189	3.676	4370	1.889	0.08158	29.881	1.0283	4274	5.587	143.0		
FICTIVE COMBUSTR		45	58 0														
62.281	157.692	2049	393.6(523)	1.3251	28.814	2165											
62.281	0.587	449	-21.2(105)	1.3991	28.814	1041	4.377	4556	1.824	0.11114	29.881	1.0497	4389	7.669	146.9		
FICTIVE NOZZLE		46	59 0														
87.357	191.351	2037	390.2(519)	1.3255	28.814	2159											
87.357	0.218	310	-52.9(77)	1.3968	28.814	878	5.376	4709	1.809	0.06023	29.881	1.0371	4081	4.407	150.0		

READING = 0096 BLOCK = 212 TIME = 294.640 MACH 5.2 PT = 417.499 TT = 2227.5

XARS	P-IB	P-OB	PDA	GOX	W-IB	G-OB	CAWALL	P-TB/PBO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.400E 00	0.000	-5.417E-01	0.000	0.000	0.000	2.470E-02	2.384E 00	3.353E-03	0.000	0.000
1.836E 01	1.400E 00	0.000	-4.657E 01	0.000	0.000	0.000	1.634E 02	2.384E 00	3.353E-03	0.000	0.000
3.070E 01	3.205E 00	0.000	-2.332E 02	0.000	0.000	0.000	5.053E 02	5.458E 00	7.677E-03	0.000	0.000
3.508E 01	4.256E 00	0.000	-4.750E 02	0.000	0.000	0.000	6.804E 02	7.247E 00	1.019E-02	0.000	0.000
3.526E 01	4.778E 00	6.046E 00	-5.500E 02	0.000	0.000	0.000	6.883E 02	8.137E 00	1.144E-02	1.030E 01	1.449E-02
3.526E 01	4.796E 00	6.033E 00	-5.501E 02	0.000	0.000	0.000	6.886E 02	8.166E 00	1.149E-02	1.027E 01	1.445E-02
3.555E 01	5.430E 00	5.333E 00	-5.601E 02	0.000	0.000	0.000	7.172E 02	9.587E 00	1.349E-02	9.082E 00	1.277E-02
3.593E 01	5.559E 00	4.400E 00	-5.818E 02	-2.015E 02	-2.015E 02	0.000	7.559E 02	9.467E 00	1.332E-02	7.493E 00	1.054E-02
3.606E 01	5.535E 00	8.693E 00	-5.872E 02	-2.030E 02	-2.030E 02	0.000	7.691E 02	9.426E 00	1.326E-02	1.480E 01	2.082E-02
3.644E 01	4.942E 00	2.132E 01	-5.683E 02	-2.074E 02	-2.074E 02	0.000	8.086E 02	8.417E 00	1.184E-02	3.631E 01	5.108E-02
3.648E 01	4.881E 00	2.111E 01	-5.654E 02	-2.079E 02	-2.079E 02	0.000	8.127E 02	8.312E 00	1.169E-02	3.595E 01	5.057E-02
3.701E 01	5.745E 00	1.824E 01	-5.408E 02	-2.545E 02	-2.144E 02	-4.006E 01	8.687E 02	9.783E 00	1.376E-02	3.106E 01	4.369E-02
3.707E 01	5.960E 00	1.791E 01	-5.416E 02	-2.580E 02	-2.152E 02	-4.278E 01	8.752E 02	1.015E 01	1.428E-02	3.050E 01	4.290E-02
3.739E 01	7.094E 00	1.424E 01	-5.492E 02	-2.762E 02	-2.193E 02	-5.687E 01	9.096E 02	1.208E 01	1.699E-02	2.425E 01	3.410E-02
3.792E 01	8.972E 00	1.405E 01	-5.941E 02	-3.063E 02	-2.265E 02	-7.976E 01	9.674E 02	1.528E 01	2.149E-02	2.393E 01	3.365E-02
3.803E 01	9.360E 00	1.456E 01	-6.039E 02	-3.125E 02	-2.280E 02	-8.447E 01	9.794E 02	1.594E 01	2.242E-02	2.479E 01	3.487E-02
3.841E 01	1.444E 01	1.633E 01	-6.463E 02	-3.345E 02	-2.337E 02	-1.008E 02	1.022E 03	2.460E 01	3.460E-02	2.781E 01	3.912E-02
3.875E 01	1.898E 01	1.867E 01	-6.924E 02	-3.547E 02	-2.393E 02	-1.154E 02	1.060E 03	3.232E 01	4.546E-02	3.180E 01	4.473E-02
3.888E 01	2.072E 01	1.957E 01	-7.094E 02	-3.626E 02	-2.417E 02	-1.210E 02	1.075E 03	3.529E 01	4.964E-02	3.333E 01	4.689E-02
3.901E 01	2.245E 01	2.026E 01	-7.233E 02	-3.706E 02	-2.441E 02	-1.265E 02	1.090E 03	3.823E 01	5.377E-02	3.451E 01	4.854E-02
3.939E 01	2.146E 01	2.229E 01	-7.558E 02	-3.944E 02	-2.517E 02	-1.427E 02	1.134E 03	3.654E 01	5.140E-02	3.796E 01	5.339E-02
3.950E 01	2.117E 01	1.851E 01	-7.624E 02	-4.014E 02	-2.540E 02	-1.473E 02	1.147E 03	3.606E 01	5.072E-02	3.152E 01	4.434E-02
3.988E 01	2.029E 01	5.350E 00	-7.941E 02	-4.260E 02	-2.628E 02	-1.632E 02	1.191E 03	3.454E 01	4.859E-02	9.111E 00	1.281E-02
4.000E 01	2.001E 01	7.385E 00	-8.065E 02	-4.339E 02	-2.658E 02	-1.682E 02	1.205E 03	3.407E 01	4.792E-02	1.258E 01	1.769E-02
4.036E 01	2.390E 01	1.387E 01	-8.375E 02	-4.593E 02	-2.757E 02	-1.836E 02	1.249E 03	4.071E 01	5.725E-02	2.363E 01	3.323E-02
4.040E 01	2.410E 01	1.372E 01	-8.389E 02	-4.606E 02	-2.762E 02	-1.844E 02	1.252E 03	4.104E 01	5.773E-02	2.336E 01	3.285E-02
4.041E 01	2.420E 01	1.364E 01	-8.395E 02	-4.613E 02	-2.764E 02	-1.848E 02	1.253E 03	4.122E 01	5.797E-02	2.322E 01	3.266E-02
4.138E 01	3.409E 01	5.736E 00	-9.479E 02	-5.370E 02	-3.050E 02	-2.319E 02	1.367E 03	5.805E 01	8.165E-02	9.768E 00	1.374E-02
4.144E 01	3.476E 01	5.205E 00	-9.576E 02	-5.428E 02	-3.072E 02	-2.357E 02	1.375E 03	5.918E 01	8.325E-02	8.863E 00	1.247E-02
4.150E 01	3.536E 01	5.475E 00	-9.667E 02	-5.482E 02	-3.091E 02	-2.391E 02	1.382E 03	6.022E 01	8.470E-02	9.324E 00	1.311E-02
4.246E 01	2.119E 01	9.856E 00	-1.056E 03	-6.395E 02	-3.424E 02	-2.971E 02	1.497E 03	3.608E 01	5.075E-02	1.678E 01	2.361E-02
4.416E 01	3.021E 01	1.762E 01	-1.119E 03	-8.116E 02	-4.024E 02	-4.093E 02	1.703E 03	5.144E 01	7.236E-02	3.000E 01	4.219E-02
4.431E 01	3.100E 01	1.790E 01	-1.126E 03	-8.266E 02	-4.075E 02	-4.194E 02	1.721E 03	5.279E 01	7.425E-02	3.048E 01	4.288E-02
4.480E 01	3.360E 01	1.884E 01	-1.152E 03	-8.739E 02	-4.240E 02	-4.500E 02	1.780E 03	5.722E 01	8.048E-02	3.207E 01	4.511E-02
4.488E 01	3.304E 01	1.898E 01	-1.155E 03	-8.808E 02	-4.265E 02	-4.543E 02	1.790E 03	5.626E 01	7.914E-02	3.232E 01	4.546E-02
4.560E 01	2.766E 01	2.036E 01	-1.172E 03	-9.413E 02	-4.501E 02	-4.912E 02	1.879E 03	4.710E 01	6.625E-02	3.468E 01	4.877E-02
4.626E 01	2.277E 01	2.179E 01	-1.156E 03	-9.913E 02	-4.706E 02	-5.208E 02	1.960E 03	3.877E 01	5.454E-02	3.711E 01	5.219E-02
4.731E 01	1.498E 01	2.407E 01	-1.090E 03	-1.069E 03	-5.016E 02	-5.679E 02	2.090E 03	2.551E 01	3.588E-02	4.098E 01	5.764E-02
4.740E 01	1.452E 01	2.426E 01	-1.063E 03	-1.076E 03	-5.041E 02	-5.719E 02	2.101E 03	2.473E 01	3.478E-02	4.132E 01	5.811E-02
4.811E 01	1.091E 01	1.958E 01	-1.020E 03	-1.124E 03	-5.238E 02	-6.006E 02	2.190E 03	1.858E 01	2.614E-02	3.335E 01	4.690E-02
4.885E 01	1.470E 01	1.470E 01	-9.573E 02	-1.167E 03	-5.433E 02	-6.234E 02	2.282E 03	2.503E 01	3.520E-02	2.503E 01	3.520E-02
4.938E 01	1.120E 01	1.120E 01	-9.215E 02	-1.192E 03	-5.566E 02	-6.353E 02	2.349E 03	1.907E 01	2.683E-02	1.907E 01	2.683E-02
5.079E 01	1.046E 01	1.046E 01	-8.414E 02	-1.256E 03	-5.895E 02	-6.683E 02	2.526E 03	1.782E 01	2.506E-02	1.782E 01	2.506E-02
5.289E 01	6.300E 00	6.300E 00	-7.492E 02	-1.344E 03	-6.317E 02	-7.123E 02	2.793E 03	1.073E 01	1.509E-02	1.073E 01	1.509E-02
5.339E 01	5.850E 00	5.850E 00	-7.334E 02	-1.359E 03	-6.406E 02	-7.186E 02	2.856E 03	9.962E 00	1.401E-02	9.962E 00	1.401E-02
5.414E 01	5.279E 00	5.279E 00	-7.118E 02	-1.380E 03	-6.530E 02	-7.267E 02	2.952E 03	8.989E 00	1.264E-02	8.989E 00	1.264E-02
5.490E 01	4.700E 00	4.700E 00	-6.925E 02	-1.399E 03	-6.646E 02	-7.345E 02	3.050E 03	8.004E 00	1.126E-02	8.004E 00	1.126E-02
5.576E 01	4.440E 00	4.440E 00	-6.728E 02	-1.419E 03	-6.764E 02	-7.429E 02	3.160E 03	7.560E 00	1.063E-02	7.560E 00	1.063E-02
5.633E 01	4.268E 00	4.268E 00	-6.326E 02	-1.431E 03	-6.829E 02	-7.481E 02	3.209E 03	7.268E 00	1.022E-02	7.268E 00	1.022E-02
5.636E 01	1.700E 00	4.251E 00	-6.314E 02	-1.432E 03	-6.834E 02	-7.486E 02	3.216E 03	2.895E 00	4.072E-03	7.240E 00	1.018E-02
5.652E 01	1.700E 00	4.209E 00	-6.286E 02	-1.435E 03	-6.848E 02	-7.499E 02	3.234E 03	2.895E 00	4.072E-03	7.168E 00	1.008E-02
5.660E 01	4.185E 00	4.185E 00	-6.269E 02	-1.436E 03	-6.856E 02	-7.506E 02	3.244E 03	7.126E 00	1.002E-02	7.126E 00	1.002E-02
5.688E 01	4.100E 00	4.100E 00	-6.215E 02	-1.441E 03	-6.881E 02	-7.531E 02	3.280E 03	6.982E 00	9.820E-03	6.982E 00	9.820E-03
5.711E 01	4.041E 00	4.041E 00	-6.176E 02	-1.445E 03	-6.901E 02	-7.552E 02	3.309E 03	6.881E 00	9.678E-03	6.881E 00	9.678E-03
5.763E 01	3.850E 00	3.850E 00	-6.069E 02	-1.457E 03	-6.957E 02	-7.617E 02	3.402E 03	6.556E 00	9.222E-03	6.556E 00	9.222E-03
5.885E 01	3.525E 00	3.525E 00	-5.983E 02	-1.473E 03	-7.020E 02	-7.708E 02	3.532E 03	6.003E 00	8.443E-03	6.003E 00	8.443E-03

READING = 0096 BLOCK = 212 TIME = 294.440 MACH 5.2 PT = 417.499 TT = 2227.5 PAGE 5

XARG	P-IB	P-OB	PBA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.086E 01	1.937E 00	1.937E 00	-5.977E 02	-1.495E 03	-7.090E 02	-7.807E 02	3.790E 03	3.129E 00	4.401E-03	3.129E 00	4.401E-03
6.228E 01	2.100E 00	2.100E 00	-5.977E 02	-1.507E 03	-7.143E 02	-7.922E 02	3.972E 03	3.576E 00	5.030E-03	3.576E 00	5.030E-03
6.474E 01	5.070E 00	5.070E 00	-5.977E 02	-1.532E 03	-7.244E 02	-8.075E 02	4.289E 03	8.634E 00	1.214E-02	8.634E 00	1.214E-02
6.512E 01	4.025E 00	5.523E 00	-5.977E 02	-1.536E 03	-7.262E 02	-8.102E 02	4.337E 03	6.854E 00	9.641E-03	9.405E 00	1.323E-02
6.516E 01	4.025E 00	5.571E 00	-5.977E 02	-1.537E 03	-7.264E 02	-8.105E 02	4.342E 03	6.854E 00	9.641E-03	9.488E 00	1.334E-02
6.536E 01	3.840E 00	5.812E 00	-5.977E 02	-1.539E 03	-7.274E 02	-8.120E 02	4.368E 03	6.538E 00	9.196E-03	9.898E 00	1.392E-02
6.702E 01	2.300E 00	4.375E 00	-5.497E 02	-1.557E 03	-7.345E 02	-8.224E 02	4.583E 03	3.917E 00	5.509E-03	7.450E 00	1.048E-02
6.769E 01	2.035E 00	2.095E 00	-4.912E 02	-1.562E 03	-7.369E 02	-8.249E 02	4.665E 03	3.465E 00	4.874E-03	4.930E 00	6.934E-03
6.846E 01	1.730E 00	2.066E 00	-4.316E 02	-1.567E 03	-7.394E 02	-8.273E 02	4.760E 03	2.946E 00	4.144E-03	3.517E 00	4.947E-03
6.918E 01	1.716E 00	1.290E 00	-3.870E 02	-1.571E 03	-7.416E 02	-8.291E 02	4.848E 03	2.923E 00	4.111E-03	2.197E 00	3.090E-03
6.979E 01	1.705E 00	8.026E 00	-3.213E 02	-1.574E 03	-7.435E 02	-8.309E 02	4.922E 03	2.903E 00	4.084E-03	1.367E 01	1.922E-02
6.999E 01	1.645E 00	1.023E 01	-2.864E 02	-1.576E 03	-7.441E 02	-8.316E 02	4.946E 03	2.801E 00	3.940E-03	1.743E 01	2.451E-02
7.074E 01	1.419E 00	1.120E 00	-2.002E 02	-1.582E 03	-7.464E 02	-8.354E 02	5.036E 03	2.417E 00	3.400E-03	1.907E 00	2.683E-03
7.117E 01	1.290E 00	1.180E 00	-1.861E 02	-1.585E 03	-7.478E 02	-8.376E 02	5.088E 03	2.197E 00	3.090E-03	2.010E 00	2.827E-03
7.270E 01	9.712E-01	1.595E 00	-1.284E 02	-1.593E 03	-7.518E 02	-8.411E 02	5.273E 03	1.654E 00	2.326E-03	2.376E 00	3.341E-03
7.285E 01	9.400E-01	3.304E 00	-1.217E 02	-1.593E 03	-7.522E 02	-8.410E 02	5.290E 03	1.601E 00	2.251E-03	5.627E 00	7.915E-03
7.341E 01	8.996E-01	1.043E 01	-6.122E 01	-1.594E 03	-7.533E 02	-8.409E 02	5.356E 03	1.532E 00	2.155E-03	1.777E 01	2.499E-02
7.360E 01	8.859E-01	5.050E-01	1.691E 01	-1.595E 03	-7.537E 02	-8.408E 02	5.382E 03	1.509E 00	2.122E-03	8.600E-01	1.210E-03
7.360E 01	8.856E-01	2.961E-01	1.770E 01	-1.595E 03	-7.537E 02	-8.408E 02	5.363E 03	1.508E 00	2.121E-03	5.043E-01	7.093E-04
7.493E 01	7.900E-01	0.000	3.540E 01	-1.596E 03	-7.560E 02	-8.404E 02	5.434E 03	1.345E 00	1.892E-03	0.000	0.000
7.778E 01	4.350E-01	0.000	6.110E 01	-1.600E 03	-7.594E 02	-8.404E 02	5.533E 03	6.429E-01	1.186E-03	0.000	0.000
8.168E 01	5.350E-01	0.000	8.311E 01	-1.602E 03	-7.620E 02	-8.404E 02	5.638E 03	9.111E-01	1.281E-03	0.000	0.000
8.449E 01	5.750E-01	0.000	9.540E 01	-1.604E 03	-7.638E 02	-8.404E 02	5.692E 03	9.792E-01	1.377E-03	0.000	0.000
8.735E 01	5.950E-01	0.000	1.096E 02	-1.607E 03	-7.670E 02	-8.404E 02	5.715E 03	1.013E 00	1.425E-03	0.000	0.000
8.736E 01	5.950E-01	0.000	1.096E 02	-1.607E 03	-7.671E 02	-8.404E 02	5.715E 03	1.013E 00	1.425E-03	0.000	0.000

READING = 0096 BLOCK = 212 TIME = 294.640 MACH 5.2 PT = 417.499 TT = 2227.5

X	QDRAD	QLOAD	CF	HC
4.040E 01	1.319E 02	1.319E 02	2.335E-03	5.118E-02
4.041E 01	1.555E-01	1.321E 02	2.334E-03	5.120E-02
4.138E 01	1.496E 01	1.469E 02	2.453E-03	5.452E-02
4.144E 01	9.912E-01	1.479E 02	2.463E-03	5.482E-02
4.150E 01	9.059E-01	1.488E 02	2.472E-03	5.513E-02
4.246E 01	1.430E 01	1.631E 02	2.563E-03	5.721E-02
4.416E 01	2.395E 01	1.871E 02	2.631E-03	5.691E-02
4.431E 01	2.009E 00	1.891E 02	2.640E-03	5.711E-02
4.480E 01	6.530E 00	1.956E 02	2.673E-03	5.780E-02
4.488E 01	9.926E-01	1.966E 02	2.678E-03	5.789E-02
4.560E 01	9.352E 00	2.060E 02	2.709E-03	5.745E-02
4.626E 01	8.266E 00	2.142E 02	2.695E-03	5.494E-02
4.731E 01	1.293E 01	2.272E 02	2.631E-03	4.944E-02
4.740E 01	1.098E 00	2.283E 02	2.624E-03	4.898E-02
4.811E 01	8.526E 00	2.368E 02	2.570E-03	4.457E-02
4.885E 01	8.499E 00	2.453E 02	2.516E-03	3.944E-02
4.938E 01	5.733E 00	2.510E 02	2.487E-03	3.629E-02
5.079E 01	1.388E 01	2.649E 02	2.409E-03	2.967E-02
5.289E 01	1.766E 01	2.826E 02	2.327E-03	2.321E-02
5.339E 01	3.769E 00	2.863E 02	2.314E-03	2.209E-02
5.414E 01	5.397E 00	2.917E 02	2.294E-03	2.060E-02
5.490E 01	5.184E 00	2.969E 02	2.277E-03	1.929E-02
5.576E 01	5.557E 00	3.025E 02	2.260E-03	1.801E-02
5.633E 01	2.172E 00	3.046E 02	2.209E-03	1.405E-02
5.638E 01	2.750E-01	3.049E 02	2.208E-03	1.400E-02
5.652E 01	6.903E-01	3.056E 02	2.205E-03	1.388E-02
5.660E 01	3.978E-01	3.060E 02	2.199E-03	1.398E-02
5.688E 01	1.389E 00	3.074E 02	2.191E-03	1.387E-02
5.711E 01	1.118E 00	3.085E 02	2.185E-03	1.381E-02
5.783E 01	3.556E 00	3.121E 02	2.173E-03	1.351E-02
5.885E 01	4.952E 00	3.170E 02	2.164E-03	1.336E-02
6.086E 01	9.875E 00	3.269E 02	2.167E-03	1.384E-02
6.228E 01	7.160E 00	3.341E 02	2.166E-03	1.422E-02
6.736E 01	1.227E 01	3.463E 02	2.188E-03	1.363E-02
6.474E 01	1.247E 01	3.606E 02	2.179E-03	1.391E-02
6.512E 01	1.857E 00	3.624E 02	2.166E-03	1.331E-02
6.516E 01	1.946E-01	3.626E 02	2.166E-03	1.336E-02
6.536E 01	9.753E-01	3.636E 02	2.166E-03	1.341E-02
6.702E 01	7.427E 00	3.710E 02	2.092E-03	1.028E-02
6.769E 01	2.309E 00	3.733E 02	2.036E-03	8.238E-03
6.846E 01	2.249E 00	3.756E 02	1.988E-03	6.795E-03
6.918E 01	1.781E 00	3.774E 02	1.945E-03	5.714E-03
6.979E 01	2.067E 00	3.794E 02	2.150E-03	1.337E-02
6.999E 01	9.665E-01	3.804E 02	2.188E-03	1.537E-02
7.074E 01	2.585E 00	3.830E 02	1.907E-03	5.019E-03
7.117E 01	8.608E-01	3.838E 02	1.901E-03	4.914E-03
7.270E 01	2.976E 00	3.868E 02	1.892E-03	4.753E-03
7.285E 01	3.358E-01	3.872E 02	1.990E-03	7.311E-03
7.341E 01	2.084E 00	3.892E 02	2.168E-03	1.460E-02
7.360E 01	6.471E-01	3.899E 02	1.805E-03	3.197E-03
7.360E 01	1.701E-03	3.899E 02	1.780E-03	2.631E-03
7.493E 01	5.699E-01	3.905E 02	1.821E-03	3.507E-03
7.778E 01	1.017E 00	3.915E 02	1.741E-03	2.461E-03
8.168E 01	9.355E-01	3.924E 02	1.741E-03	2.591E-03
8.449E 01	5.097E-01	3.929E 02	1.744E-03	2.720E-03
8.735E 01	2.188E-01	3.932E 02	1.741E-03	2.777E-03

READING = 0096 BLOCK = 212 TIME = 294.640 MACH 5.2 PT = 417.499 TT = 2227.5

X	UDRAG	CDRAG	CF	HC
8.736E 01	0.000	3.932E 02	1.741E-03	2.777E-03

416

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST........................	-261.	(LBF)
MEASURED THRUST..........................	-242.	(LBF)
CALCULATED SPECIFIC IMPULSE..............	-261.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE................	-242.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT............	-.0999	
MEASURED THRUST COEFFICIENT..............	-.0862	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST............................	0.	(LBF)
NET THRUST...............................	0.	(LBF)
SPECIFIC IMPULSE.........................	0.	(LBF-SEC/LBM)
THRUST COEFFICIENT.......................	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG......................	131.9	(LBF)
INLET MOMENTUM CHANGE....................	-970.8	(LBF)
COMBUSTOR FRICTION DRAG..................	202.1	(LBF)
COMBUSTOR STRUT DRAG.....................	7.58	(LBF)
COMBUSTOR MOMENTUM CHANGE................	31.	(LBF)
NOZZLE FRICTION DRAG.....................	45.06	(LBF)
NOZZLE STRUT DRAG........................	3.74	(LBF)
NOZZLE MOMENTUM CHANGE...................	658.	(LBF)
NOZZLE PRESSURE INTEGRAL.................	707.	(LBF)
EXTERNAL FRICTION DRAG...................	61.04	(LBF)
EXTERNAL PRESSURE INTEGRAL...............	-1434.	(LBF)
TOTAL EXTERNAL DRAG......................	-1495.	(LBF)
TOTAL STRUT DRAG.........................	11.32	(LBF)
CAVITY FORCE.............................	-1249.	(LBF)
CALCULATED LOAD CELL FORCE...............	-3025.	(LBF)
MEASURED LOAD CELL FORCE.................	-2983.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE................	34.884	(IN)
SPIKE TRANSLATION........................	0.3807	(IN)
INLET THROAT.............................	40.400	(IN)
COWL LEADING EDGE........................	35.265	(IN)
NOZZLE SHROUD TRAILING EDGE..............	73.605	(IN)
NOZZLE PLUG TRAILING EDGE................	87.357	(IN)
STRUT LEADING EDGE.......................	56.521	(IN)
STRUT TRAILING EDGE......................	65.121	(IN)
COMBUSTOR EXIT...........................	62.281	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO..........................	0.8123	
ADDITIVE DRAG COEFFICIENT................	0.0161	
LIMITING PRESSURE RECOVERY EFFICIENCY....	0.2528	
DELTA PT2................................	0.1349	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC.....	0.3775	
TOTAL PRESSURE RECOVERY - SUBSONIC.......	0.2576	
INLET PROCESS EFFICIENCY - SUPERSONIC....	0.8908	
INLET PROCESS EFFICIENCY - SUBSONIC......	0.9109	
KINETIC ENERGY EFFICIENCY - SUPERSONIC...	0.9151	
KINETIC ENERGY EFFICIENCY - SUBSONIC.....	0.8874	
ENTHALPY AT PO - SUPERSONIC..............	-13.54	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC................	-0.15	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO...........................	0.0000
EQUIVALENCE RATIO........................	0.000
COMBUSTOR EFFICIENCY.....................	0.000
TOTAL PRESSURE RATIO.....................	0.3930
COMBUSTOR EFFECTIVENESS..................	0.8066
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS....	1.0339
NOZZLE COEFFICIENT - CT..................	0.9804
PROCESS EFFICIENCY.......................	1.1891
KINETIC ENERGY EFFICIENCY................	1.0637

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.366	
1C	44.300	
2A	48.841	
2C	46.250	
3A	54.131	
3B	56.316	
4	44.866	

Reading 96

t = 313.54 sec.

Test cell pressure was high which resulted in increased pressures in the AIM nozzle.

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMIM	G	IVAL	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	416.999	2221	441.8(571)	1.3187	28.859	2246											
0.000	0.586	374	-39.3(90)	1.3983	28.858	949	5.170	4907	1.780	0.14365	29.867	0.8118	4677	10.954	156.6		
SPIKE TIP NS		2	0 7														
0.600	22.137	2221	441.8(571)	1.3188	28.859	2247											
0.600	20.228	2173	428.2(557)	1.3204	28.859	2223	0.372	826	1.982	0.14365	29.867	0.8118	4973	1.845	166.5		
WIND TUNNEL		3	0 0														
0.000	416.999	2221	441.8(571)	1.3187	28.859	2246											
0.000	0.655	386	-36.4(93)	1.3985	28.858	964	5.074	4892	1.780	0.15501	32.229	0.8118	5037	11.785	156.3		
SPIKE TIP NS		4	0 0														
0.600	22.137	2221	441.8(571)	1.3188	28.859	2247											
0.600	19.869	2164	425.5(555)	1.3208	28.859	2219	0.407	904	1.982	0.15501	32.229	0.8118	5036	2.177	156.3		
INLET THROAT		5	0 4														
40.400	164.219	2171	427.6(557)	1.3205	28.859	2222											
40.400	21.264	1293	188.2(317)	1.3611	28.858	1741	1.988	3461	1.838	1.06312	32.229	0.1097	4064	61.704	126.1		
INLET UPNRSK		6	0 3														
40.400	164.219	2171	427.6(557)	1.3205	28.859	2222											
40.400	20.536	1281	185.1(314)	1.3618	28.858	1734	2.009	3483	1.838	1.04291	32.229	0.1207	4124	56.456	126.0		
INLET DNNRSK		7	0 4														
40.400	115.139	2171	427.6(557)	1.3205	28.859	2222											
40.400	93.489	2064	397.2(526)	1.3243	28.859	2170	0.568	1233	1.862	1.04291	32.229	0.1207	4124	19.979	126.0		
COMBUSTOR	0	8	1 5														
40.410	164.772	2171	427.6(557)	1.3205	28.859	2222											
40.410	24.399	1339	200.3(330)	1.3582	28.858	1770	1.905	3372	1.837	1.14706	32.229	0.1097	4063	60.109	126.1		
COMBUSTOR	0	9	2 4														
41.382	138.232	2163	425.2(554)	1.3208	28.859	2218											
41.382	28.761	1458	231.6(361)	1.3512	28.858	1842	1.690	3113	1.848	1.14652	32.229	0.1098	3927	55.460	121.8		
COMBUSTOR	0	10	3 4														
41.447	136.719	2162	425.1(554)	1.3208	28.859	2218											
41.447	29.154	1467	233.9(363)	1.3507	28.858	1848	1.674	3092	1.849	1.14758	32.229	0.1096	3916	55.147	121.5		
COMBUSTOR	0	11	4 4														
41.500	135.344	2162	424.9(554)	1.3208	28.859	2218											
41.500	29.455	1475	235.9(365)	1.3502	28.858	1852	1.661	3075	1.850	1.14722	32.229	0.1097	3908	54.824	121.3		
COMBUSTOR	0	12	5 5														
42.460	121.337	2152	422.1(551)	1.3212	28.859	2213											
42.460	32.613	1552	256.5(386)	1.3460	28.858	1897	1.517	2878	1.856	1.13644	32.229	0.1107	3813	50.825	116.3		
COMBUSTOR	0	13	6 5														
44.167	108.964	2133	416.7(546)	1.3218	28.859	2204											
44.167	34.694	1603	270.3(400)	1.3433	28.858	1926	1.405	2706	1.861	1.09373	32.229	0.1150	3733	45.998	115.8		
COMBUSTOR	0	14	7 5														
44.310	108.206	2131	416.2(545)	1.3219	28.859	2203											
44.310	35.081	1609	272.0(401)	1.3430	28.858	1930	1.392	2687	1.861	1.09374	32.229	0.1150	3725	45.666	115.6		
COMBUSTOR	0	15	8 5														
44.800	105.018	2126	414.7(544)	1.3221	28.859	2200											
44.800	36.552	1634	278.8(408)	1.3417	28.858	1944	1.342	2608	1.862	1.08937	32.229	0.1155	3694	44.160	114.6		
COMBUSTOR	0	16	9 5														
44.882	104.473	2125	414.5(544)	1.3221	28.859	2200											
44.882	36.774	1639	279.4(409)	1.3415	28.858	1946	1.334	2596	1.863	1.08797	32.229	0.1157	3690	43.888	114.5		
COMBUSTOR	0	17	10 5														
46.260	97.799	2112	410.9(540)	1.3226	28.859	2194											
46.260	34.978	1635	278.9(408)	1.3417	28.858	1944	1.322	2570	1.865	1.02704	32.229	0.1225	3672	41.026	113.9		
COMBUSTOR	0	18	11 5														
47.310	95.940	2103	408.4(537)	1.3229	28.859	2189											
47.310	29.299	1563	259.6(389)	1.3454	28.858	1903	1.434	2729	1.866	0.95516	32.229	0.1317	3722	40.506	115.5		

READING = 0096 BLOCK = 233 TIME = 313.540 MACH 5.2 PI = 416.999 TI = 2221.5

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOPTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 5														
47.407	95.951	2102	408.2(537)	1.3229	28.859	2189											
47.407	28.740	1555	257.3(387)	1.3456	28.858	1899	1.447	2747	1.666	0.94836	32.229	0.1327	3729	40.490	115.7		
COMBUSTOR	0	20	13 5														
48.110	95.581	2097	406.6(536)	1.3231	28.859	2186											
48.110	24.639	1492	240.4(370)	1.3493	28.858	1862	1.549	2883	1.865	0.86947	32.229	0.1415	3781	39.855	117.3		
COMBUSTOR	0	21	14 4														
48.857	93.196	2092	405.2(534)	1.3233	28.859	2184											
48.857	20.568	1429	223.8(353)	1.3529	28.858	1825	1.651	3012	1.866	0.80972	32.229	0.1554	3836	37.903	119.0		
COMBUSTOR	0	22	15 5														
49.387	90.882	2089	404.3(533)	1.3234	28.859	2182											
49.387	18.344	1394	214.6(304)	1.3549	28.858	1804	1.708	3081	1.867	0.75728	32.229	0.1662	3867	36.260	120.0		
COMBUSTOR	0	23	16 7														
50.797	93.041	2080	401.9(531)	1.3237	28.859	2178											
50.797	13.081	1261	180.0(309)	1.3630	28.858	1721	1.936	3332	1.865	0.64541	32.229	0.1950	3991	33.422	123.8		
COMBUSTOR	0	24	17 202														
52.897	70.483	2146	396.3(552)	1.3205	28.779	2213											
52.897	33.600	1788	295.9(492)	1.3339	28.779	2030	1.104	2241	1.901	0.53098	32.351	0.2379	4301	18.496	132.9	0.02	1.00
COMBUSTOR	0	25	18 200														
53.397	66.534	2143	395.4(551)	1.3206	28.779	2211											
53.397	37.883	1866	317.5(473)	1.3308	28.779	2071	0.953	1974	1.904	0.50929	32.351	0.2480	4391	15.620	135.7	0.02	1.00
COMBUSTOR	0	26	19 5														
54.137	54.497	2657	427.1(787)	1.3017	25.653	2589											
54.137	38.235	2445	357.1(718)	1.3088	25.653	2491	0.751	1872	2.191	0.48585	32.716	0.2629	4478	14.134	136.9	0.39	0.36
COMBUSTOR	0	27	20 2														
54.147	54.484	2658	427.1(787)	1.3016	25.655	2590											
54.147	38.239	2447	357.1(718)	1.3087	25.655	2491	0.751	1872	2.191	0.48548	32.716	0.2631	4480	14.120	136.9	0.39	0.36
COMBUSTOR	0	28	21 4														
54.907	53.577	2790	425.2(829)	1.2955	25.796	2639											
54.907	38.600	2587	357.3(762)	1.3023	25.796	2548	0.723	1843	2.203	0.45909	32.716	0.2782	4625	13.150	141.4	0.39	0.43
COMBUSTOR	0	29	22 4														
55.760	52.654	2946	422.6(878)	1.2882	25.968	2695											
55.760	38.751	2749	355.8(813)	1.2948	25.969	2610	0.700	1828	2.216	0.43309	32.716	0.2949	4786	12.305	146.3	0.39	0.52
COMBUSTOR	0	30	23 5														
56.322	49.463	3105	445.9(1038)	1.2839	23.279	2918											
56.322	38.850	2943	383.6(977)	1.2894	23.280	2847	0.620	1766	2.447	0.35127	33.081	0.3677	5475	9.642	165.5	0.77	0.37
COMBUSTOR	0	31	24 2														
56.332	49.461	3108	445.9(1039)	1.2837	23.281	2919											
56.332	38.652	2945	383.5(978)	1.2893	23.282	2848	0.620	1767	2.447	0.35108	33.081	0.3679	5477	9.639	165.6	0.77	0.37
COMBUSTOR	0	32	25 4														
56.387	49.082	3218	445.7(1078)	1.2784	23.389	2957											
56.387	37.881	3040	376.8(1011)	1.2846	23.390	2881	0.644	1856	2.456	0.35009	33.081	0.3689	5468	10.100	165.9	0.77	0.41
COMBUSTOR	0	33	26 3														
56.527	48.991	3239	445.2(1086)	1.2773	23.411	2964											
56.527	37.893	3062	376.5(1019)	1.2835	23.412	2889	0.642	1854	2.457	0.34757	33.081	0.3716	5513	10.015	166.6	0.77	0.42
COMBUSTOR	0	34	27 6														
56.607	49.831	3207	444.9(1074)	1.2789	23.380	2953											
56.607	38.900	3037	379.2(1010)	1.2848	23.381	2881	0.629	1813	2.454	0.35140	33.081	0.3675	5526	9.903	167.1	0.77	0.41
COMBUSTOR	0	35	28 4														
56.887	50.035	3281	444.0(1101)	1.2753	23.454	2978											
56.887	38.950	3107	376.2(1035)	1.2814	23.456	2905	0.634	1841	2.458	0.35043	33.081	0.3686	5570	10.026	168.4	0.77	0.43
COMBUSTOR	0	36	29 3														
57.113	50.151	3340	443.2(1122)	1.2723	23.515	2997											
57.113	38.926	3162	373.6(1055)	1.2786	23.517	2924	0.638	1866	2.462	0.34958	33.081	0.3695	5602	10.139	169.4	0.77	0.45
COMBUSTOR	0	37	30 4														
57.837	50.122	3468	440.8(1168)	1.2656	23.650	3038											
57.837	38.850	3286	368.6(1099)	1.2723	23.653	2964	0.641	1902	2.470	0.34417	33.081	0.3753	5689	10.172	172.0	0.77	0.50

READING = 0096 BLOCK = 233 TIME = 313,540 MACH 5,2 PT = 416,999 TT = 2221,3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOPTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58,857	50,168	3619	437,6(1223)	1,2573	23,813	3082											
58,857	38,475	3426	359,6(1149)	1,2648	23,816	3008	0,657	1976	2,476	0,34197	33,081	0,3777	5753	10,500	173,9	0,77	0,55
COMBUSTOR	0	39	32 4														
60,867	50,221	3917	431,3(1331)	1,2395	24,146	3162											
60,867	35,287	3656	321,4(1230)	1,2506	24,160	3067	0,765	2345	2,492	0,35387	33,081	0,3650	5710	12,896	172,6	0,77	0,66
COMBUSTOR	0	40	33 4														
62,287	50,569	4011	427,0(1365)	1,2333	24,260	3184											
62,287	33,187	3700	294,2(1245)	1,2469	24,280	3074	0,859	2579	2,495	0,36346	33,081	0,3553	5672	14,566	171,5	0,77	0,70
SONIC THROAT		41	34 202														
62,287	54,040	4728	427,1(1629)	1,1792	25,079	3325											
62,287	33,187	4399	281,2(1499)	1,1938	25,193	3219	0,921	2967	2,507	0,36346	33,081	0,3553	6071	16,757	183,5	0,77	1,00
COMBUSTOR REGEN		42	35 4														
62,287	50,569	4007	425,3(1363)	1,2336	24,260	3183											
62,287	33,292	3697	293,1(1244)	1,2471	24,280	3073	0,837	2572	2,494	0,36346	33,081	0,3553	5671	14,528	171,4	0,77	0,70
NOZZLE AE		43	36 4														
87,363	50,569	4011	427,0(1365)	1,2333	24,260	3184											
87,363	1,123	1739	-434,4(532)	1,3228	24,299	2169	3,027	6565	2,495	0,06667	33,081	1,9371	7308	6,803	220,9	0,77	0,70
NOZZLE PO		44	37 4														
87,363	50,569	4011	427,0(1365)	1,2333	24,260	3184											
87,363	0,655	1521	-506,2(461)	1,3343	24,299	2038	3,353	6834	2,495	0,04624	33,081	2,7934	7495	4,910	226,6	0,77	0,70
NOZZLE AE REGEN		45	38 4														
87,363	50,569	4007	425,3(1363)	1,2336	24,260	3183											
87,363	1,122	1736	-435,3(532)	1,3230	24,299	2168	3,027	6562	2,494	0,06667	33,081	1,9371	7304	6,800	220,8	0,77	0,70
NOZZLE PO REGEN		46	39 4														
87,363	50,569	4007	425,3(1363)	1,2336	24,260	3183											
87,363	0,655	1519	-506,9(460)	1,3344	24,299	2037	3,353	6830	2,494	0,04627	33,081	2,7912	7490	4,911	226,4	0,77	0,70
FICTIVE COMBUSTR		68	61 0														
62,287	164,219	4793	427,0(1654)	1,1916	25,153	3360											
62,287	0,655	1532	-864,1(452)	1,3235	25,347	1994	4,031	8038	2,419	0,05635	33,081	2,2921	8649	7,039	261,4	0,77	1,00
FICTIVE NOZZLE		69	62 0														
87,363	2444,354	3967	397,1(1348)	1,2491	24,289	3185											
87,363	0,203	379	-856,1(111)	1,3852	24,299	1036	7,645	7919	2,170	0,06667	33,081	1,9371	8243	8,208	249,2	0,77	0,70

READING = 0096 BLOCK = 233 TIME = 313.540 MACH 5.2 PT = 416.999 TT = 2221.3

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.981E-01	1.400E 00	0.000	-5.411E-01	0.000	0.000	0.000	2.470E-02	2.138E 00	3.357E-03	0.000	0.000
1.836E 01	1.400E 00	0.000	-4.657E 01	0.000	0.000	0.000	1.634E 02	2.138E 00	3.357E-03	0.000	0.000
3.070E 01	3.225E 00	0.000	-2.341E 02	0.000	0.000	0.000	5.053E 02	4.926E 00	7.734E-03	0.000	0.000
3.508E 01	4.271E 00	0.000	-4.770E 02	0.000	0.000	0.000	6.804E 02	6.524E 00	1.024E-02	0.000	0.000
3.526E 01	4.805E 00	6.040E 00	-5.525E 02	0.000	0.000	0.000	6.886E 02	7.340E 00	1.152E-02	9.226E 00	1.448E-02
3.527E 01	4.822E 00	6.026E 00	-5.526E 02	0.000	0.000	0.000	6.888E 02	7.366E 00	1.156E-02	9.204E 00	1.445E-02
3.555E 01	5.630E 00	5.386E 00	-5.624E 02	0.000	0.000	0.000	7.169E 02	8.600E 00	1.350E-02	8.227E 00	1.292E-02
3.594E 01	5.588E 00	4.500E 00	-5.842E 02	-2.009E 02	-2.009E 02	0.000	7.562E 02	8.536E 00	1.340E-02	6.874E 00	1.079E-02
3.606E 01	5.575E 00	5.322E 00	-5.917E 02	-2.024E 02	-2.024E 02	0.000	7.688E 02	8.516E 00	1.337E-02	8.129E 00	1.276E-02
3.648E 01	4.891E 00	8.119E 00	-6.075E 02	-2.073E 02	-2.073E 02	0.000	8.123E 02	7.470E 00	1.173E-02	1.240E 01	1.947E-02
3.701E 01	5.767E 00	1.165E 01	-6.244E 02	-2.538E 02	-2.138E 02	-4.000E 01	8.684E 02	8.810E 00	1.383E-02	1.779E 01	2.794E-02
3.740E 01	7.126E 00	1.422E 01	-6.424E 02	-2.759E 02	-2.188E 02	-5.709E 01	9.098E 02	1.089E 01	1.709E-02	2.173E 01	3.411E-02
3.803E 01	9.352E 00	1.621E 01	-6.929E 02	-3.118E 02	-2.274E 02	-8.444E 01	9.791E 02	1.429E 01	2.243E-02	2.476E 01	3.888E-02
3.842E 01	1.453E 01	1.742E 01	-7.332E 02	-3.342E 02	-2.331E 02	-1.010E 02	1.022E 03	2.220E 01	3.486E-02	2.662E 01	4.179E-02
3.875E 01	1.900E 01	1.902E 01	-7.770E 02	-3.540E 02	-2.387E 02	-1.153E 02	1.060E 03	2.903E 01	4.557E-02	2.905E 01	4.561E-02
3.889E 01	2.083E 01	1.967E 01	-7.935E 02	-3.622E 02	-2.411E 02	-1.211E 02	1.076E 03	3.182E 01	4.996E-02	3.005E 01	4.718E-02
3.901E 01	2.249E 01	2.049E 01	-8.078E 02	-3.697E 02	-2.434E 02	-1.264E 02	1.090E 03	3.435E 01	5.393E-02	3.129E 01	4.913E-02
3.940E 01	2.149E 01	2.302E 01	-8.399E 02	-3.939E 02	-2.511E 02	-1.428E 02	1.134E 03	3.283E 01	5.154E-02	3.517E 01	5.522E-02
3.950E 01	2.122E 01	1.967E 01	-8.455E 02	-4.004E 02	-2.533E 02	-1.471E 02	1.146E 03	3.242E 01	5.090E-02	3.005E 01	4.717E-02
3.989E 01	2.022E 01	7.125E 00	-8.739E 02	-4.254E 02	-2.622E 02	-1.632E 02	1.191E 03	3.089E 01	4.849E-02	1.088E 01	1.709E-02
4.000E 01	1.993E 01	7.173E 00	-8.854E 02	-4.328E 02	-2.650E 02	-1.679E 02	1.204E 03	3.044E 01	4.779E-02	1.096E 01	1.720E-02
4.040E 01	2.406E 01	7.340E 00	-9.261E 02	-4.594E 02	-2.753E 02	-1.841E 02	1.251E 03	3.676E 01	5.771E-02	1.121E 01	1.760E-02
4.041E 01	2.417E 01	7.345E 00	-9.270E 02	-4.601E 02	-2.756E 02	-1.845E 02	1.252E 03	3.692E 01	5.796E-02	1.122E 01	1.761E-02
4.138E 01	3.421E 01	7.752E 00	-1.048E 03	-5.360E 02	-3.042E 02	-2.318E 02	1.367E 03	5.226E 01	8.205E-02	1.184E 01	1.859E-02
4.145E 01	3.489E 01	7.780E 00	-1.057E 03	-5.418E 02	-3.063E 02	-2.355E 02	1.375E 03	5.329E 01	8.366E-02	1.188E 01	1.866E-02
4.150E 01	3.544E 01	7.980E 00	-1.065E 03	-5.467E 02	-3.081E 02	-2.386E 02	1.382E 03	5.413E 01	8.498E-02	1.219E 01	1.914E-02
4.246E 01	2.111E 01	1.158E 01	-1.144E 03	-6.360E 02	-3.412E 02	-2.968E 02	1.496E 03	3.225E 01	5.063E-02	1.769E 01	2.777E-02
4.417E 01	2.989E 01	1.798E 01	-1.198E 03	-8.113E 02	-4.012E 02	-4.101E 02	1.703E 03	4.566E 01	7.168E-02	2.747E 01	4.312E-02
4.431E 01	3.063E 01	1.826E 01	-1.205E 03	-8.260E 02	-4.061E 02	-4.199E 02	1.720E 03	4.679E 01	7.345E-02	2.789E 01	4.379E-02
4.480E 01	3.315E 01	1.922E 01	-1.228E 03	-8.734E 02	-4.227E 02	-4.507E 02	1.780E 03	5.064E 01	7.950E-02	2.935E 01	4.608E-02
4.488E 01	3.261E 01	1.938E 01	-1.232E 03	-8.809E 02	-4.254E 02	-4.555E 02	1.790E 03	4.981E 01	7.821E-02	2.960E 01	4.646E-02
4.626E 01	2.353E 01	2.206E 01	-1.230E 03	-9.970E 02	-4.709E 02	-5.261E 02	1.959E 03	3.594E 01	5.643E-02	3.370E 01	5.291E-02
4.731E 01	1.661E 01	2.411E 01	-1.166E 03	-1.078E 03	-5.049E 02	-5.735E 02	2.090E 03	2.538E 01	3.984E-02	3.685E 01	5.782E-02
4.741E 01	1.592E 01	2.430E 01	-1.159E 03	-1.086E 03	-5.080E 02	-5.779E 02	2.102E 03	2.432E 01	3.819E-02	3.712E 01	5.827E-02
4.811E 01	1.091E 01	1.985E 01	-1.097E 03	-1.137E 03	-5.303E 02	-6.062E 02	2.189E 03	1.667E 01	2.617E-02	3.033E 01	4.761E-02
4.886E 01	1.514E 01	1.514E 01	-1.033E 03	-1.182E 03	-5.538E 02	-6.287E 02	2.283E 03	2.312E 01	3.630E-02	2.312E 01	3.630E-02
4.939E 01	1.179E 01	1.179E 01	-9.960E 02	-1.210E 03	-5.703E 02	-6.399E 02	2.349E 03	1.801E 01	2.827E-02	1.801E 01	2.827E-02
5.080E 01	2.576E 01	2.576E 01	-8.572E 02	-1.288E 03	-6.133E 02	-6.746E 02	2.527E 03	3.935E 01	6.178E-02	3.935E 01	6.178E-02
5.290E 01	3.360E 01	3.360E 01	-5.304E 02	-1.419E 03	-6.755E 02	-7.432E 02	2.793E 03	5.132E 01	8.058E-02	5.132E 01	8.058E-02
5.340E 01	3.788E 01	3.788E 01	-4.375E 02	-1.449E 03	-6.900E 02	-7.592E 02	2.857E 03	5.787E 01	9.085E-02	5.787E 01	9.085E-02
5.414E 01	3.823E 01	3.823E 01	-2.921E 02	-1.498E 03	-7.111E 02	-7.871E 02	2.951E 03	5.840E 01	9.169E-02	5.840E 01	9.169E-02
5.415E 01	3.824E 01	3.824E 01	-2.902E 02	-1.499E 03	-7.114E 02	-7.876E 02	2.953E 03	5.841E 01	9.170E-02	5.841E 01	9.170E-02
5.491E 01	3.860E 01	3.860E 01	-1.412E 02	-1.561E 03	-7.328E 02	-8.282E 02	3.050E 03	5.896E 01	9.257E-02	5.896E 01	9.257E-02
5.576E 01	3.875E 01	3.875E 01	2.438E 01	-1.645E 03	-7.565E 02	-8.882E 02	3.160E 03	5.919E 01	9.293E-02	5.919E 01	9.293E-02
5.632E 01	3.885E 01	3.885E 01	7.145E 02	-1.707E 03	-7.707E 02	-9.362E 02	3.208E 03	5.934E 01	9.317E-02	5.934E 01	9.317E-02
5.633E 01	3.885E 01	3.885E 01	7.171E 02	-1.708E 03	-7.709E 02	-9.371E 02	3.209E 03	5.935E 01	9.317E-02	5.935E 01	9.317E-02
5.639E 01	3.690E 01	3.886E 01	7.281E 02	-1.714E 03	-7.722E 02	-9.422E 02	3.216E 03	5.636E 01	8.849E-02	5.936E 01	9.319E-02
5.653E 01	3.690E 01	3.889E 01	7.535E 02	-1.731E 03	-7.753E 02	-9.552E 02	3.234E 03	5.636E 01	8.849E-02	5.940E 01	9.325E-02
5.661E 01	3.890E 01	3.890E 01	7.691E 02	-1.740E 03	-7.772E 02	-9.625E 02	3.244E 03	5.942E 01	9.329E-02	5.942E 01	9.329E-02
5.689E 01	3.895E 01	3.895E 01	8.199E 02	-1.771E 03	-7.835E 02	-9.879E 02	3.260E 03	5.950E 01	9.341E-02	5.950E 01	9.341E-02
5.711E 01	3.893E 01	3.893E 01	8.578E 02	-1.796E 03	-7.885E 02	-1.008E 03	3.309E 03	5.946E 01	9.335E-02	5.946E 01	9.335E-02
5.784E 01	3.885E 01	3.885E 01	9.632E 02	-1.875E 03	-8.045E 02	-1.071E 03	3.402E 03	5.934E 01	9.317E-02	5.934E 01	9.317E-02
5.886E 01	3.847E 01	3.847E 01	1.053E 03	-1.982E 03	-8.264E 02	-1.156E 03	3.532E 03	5.877E 01	9.227E-02	5.877E 01	9.227E-02
6.087E 01	3.529E 01	3.529E 01	1.061E 03	-2.190E 03	-8.682E 02	-1.322E 03	3.790E 03	5.390E 01	8.462E-02	5.390E 01	8.462E-02
6.229E 01	3.319E 01	3.319E 01	1.061E 03	-2.332E 03	-8.984E 02	-1.434E 03	3.972E 03	5.069E 01	7.959E-02	5.069E 01	7.959E-02
6.475E 01	2.524E 01	2.524E 01	1.061E 03	-2.572E 03	-9.560E 02	-1.616E 03	4.289E 03	3.855E 01	6.052E-02	3.855E 01	6.052E-02

XABS	P-IB	P-OA	PDA	GOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/P10	P-OB/P80	P-OB/P10
6.513E 01	2.310E 01	2.402E 01	1.061E 03	-2.604E 03	-9.653E 02	-1.643E 03	4.337E 03	3.528E 01	5.540E-02	3.670E 01	5.761E-02
6.517E 01	2.310E 01	2.390E 01	1.061E 03	-2.612E 03	-9.663E 02	-1.646E 03	4.342E 03	3.528E 01	5.540E-02	3.650E 01	5.730E-02
6.537E 01	2.178E 01	2.325E 01	1.061E 03	-2.631E 03	-9.713E 02	-1.659E 03	4.368E 03	3.327E 01	5.224E-02	3.551E 01	5.576E-02
6.703E 01	1.086E 01	9.575E 00	1.244E 03	-2.755E 03	-1.011E 03	-1.744E 03	4.583E 03	1.659E 01	2.605E-02	1.463E 01	2.296E-02
6.770E 01	8.414E 00	9.525E 00	1.438E 03	-2.793E 03	-1.026E 03	-1.767E 03	4.665E 03	1.285E 01	2.018E-02	1.455E 01	2.284E-02
6.847E 01	5.600E 00	7.378E 00	1.650E 03	-2.833E 03	-1.043E 03	-1.791E 03	4.760E 03	8.554E 00	1.343E-02	1.127E 01	1.769E-02
6.919E 01	4.810E 00	5.370E 00	1.800E 03	-2.870E 03	-1.057E 03	-1.813E 03	4.848E 03	7.347E 00	1.153E-02	8.203E 00	1.288E-02
6.980E 01	4.140E 00	4.179E 00	1.901E 03	-2.900E 03	-1.068E 03	-1.833E 03	4.922E 03	6.324E 00	9.928E-03	6.384E 00	1.002E-02
7.075E 01	6.680E 00	2.325E 00	2.046E 03	-2.947E 03	-1.062E 03	-1.864E 03	5.036E 03	1.020E 01	1.602E-02	3.551E 00	5.576E-03
7.118E 01	7.830E 00	2.397E 00	2.119E 03	-2.966E 03	-1.089E 03	-1.879E 03	5.088E 03	1.196E 01	1.878E-02	3.662E 00	5.749E-03
7.271E 01	7.639E 00	2.655E 00	2.385E 03	-3.039E 03	-1.108E 03	-1.932E 03	5.273E 03	1.167E 01	1.832E-02	4.055E 00	6.367E-03
7.286E 01	7.620E 00	3.207E 00	2.410E 03	-3.046E 03	-1.109E 03	-1.937E 03	5.290E 03	1.164E 01	1.827E-02	4.896E 00	7.690E-03
7.361E 01	7.679E 00	5.965E 00	2.604E 03	-3.066E 03	-1.117E 03	-1.969E 03	5.374E 03	1.173E 01	1.842E-02	9.111E 00	1.430E-02
7.361E 01	7.680E 00	5.980E 00	2.616E 03	-3.066E 03	-1.117E 03	-1.970E 03	5.375E 03	1.173E 01	1.842E-02	9.134E 00	1.434E-02
7.494E 01	7.785E 00	0.000	2.779E 03	-3.165E 03	-1.129E 03	-2.036E 03	5.426E 03	1.189E 01	1.867E-02	0.000	0.000
7.779E 01	7.615E 00	0.000	3.087E 03	-3.259E 03	-1.148E 03	-2.111E 03	5.525E 03	1.163E 01	1.826E-02	0.000	0.000
8.169E 01	7.595E 00	0.000	3.412E 03	-3.278E 03	-1.167E 03	-2.111E 03	5.630E 03	1.160E 01	1.821E-02	0.000	0.000
8.450E 01	7.570E 00	0.000	3.581E 03	-3.293E 03	-1.183E 03	-2.111E 03	5.684E 03	1.156E 01	1.815E-02	0.000	0.000
8.736E 01	8.885E 00	0.000	3.779E 03	-3.321E 03	-1.210E 03	-2.111E 03	5.707E 03	1.357E 01	2.131E-02	0.000	0.000
8.736E 01	8.888E 00	0.000	3.779E 03	-3.321E 03	-1.211E 03	-2.111E 03	5.707E 03	1.358E 01	2.131E-02	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.266E 02	1.266E 02	2.310E-03	5.046E-02
4.041E 01	1.668E-01	1.267E 02	2.329E-03	5.517E-02
4.138E 01	1.586E 01	1.426E 02	2.448E-03	5.880E-02
4.145E 01	1.050E 00	1.436E 02	2.456E-03	5.912E-02
4.150E 01	8.652E-01	1.445E 02	2.464E-03	5.933E-02
4.246E 01	1.517E 01	1.597E 02	2.538E-03	6.109E-02
4.417E 01	2.566E 01	1.853E 02	2.594E-03	6.045E-02
4.431E 01	2.069E 00	1.874E 02	2.601E-03	6.065E-02
4.480E 01	7.024E 00	1.944E 02	2.630E-03	6.124E-02
4.488E 01	1.159E 00	1.956E 02	2.635E-03	6.129E-02
4.626E 01	1.899E 01	2.146E 02	2.648E-03	5.810E-02
4.731E 01	1.390E 01	2.285E 02	2.592E-03	5.249E-02
4.741E 01	1.266E 00	2.297E 02	2.585E-03	5.194E-02
4.811E 01	9.009E 00	2.387E 02	2.537E-03	4.745E-02
4.886E 01	9.122E 00	2.479E 02	2.486E-03	4.201E-02
4.939E 01	6.095E 00	2.540E 02	2.458E-03	3.868E-02
5.080E 01	1.479E 01	2.688E 02	2.325E-03	3.070E-02
5.290E 01	1.702E 01	2.858E 02	2.599E-03	4.529E-02
5.340E 01	2.876E 00	2.887E 02	2.693E-03	4.392E-02
5.414E 01	4.105E 00	2.928E 02	3.144E-03	3.664E-02
5.415E 01	5.572E-02	2.928E 02	3.024E-03	3.876E-02
5.491E 01	3.999E 00	2.968E 02	3.000E-03	3.820E-02
5.576E 01	4.206E 00	3.010E 02	3.026E-03	3.675E-02
5.632E 01	1.674E 00	3.027E 02	3.254E-03	3.154E-02
5.633E 01	3.919E-02	3.027E 02	3.118E-03	3.361E-02
5.639E 01	2.160E-01	3.029E 02	3.095E-03	3.432E-02
5.653E 01	5.563E-01	3.035E 02	3.130E-03	3.307E-02
5.661E 01	3.313E-01	3.038E 02	3.371E-03	3.019E-02
5.689E 01	1.152E 00	3.050E 02	3.112E-03	3.425E-02
5.711E 01	9.067E-01	3.059E 02	3.124E-03	3.420E-02
5.784E 01	2.937E 00	3.088E 02	3.120E-03	3.430E-02
5.886E 01	4.223E 00	3.131E 02	3.132E-03	3.444E-02
6.087E 01	9.381E 00	3.224E 02	3.088E-03	3.643E-02
6.229E 01	7.783E 00	3.302E 02	3.135E-03	3.612E-02
6.475E 01	1.659E 01	3.644E 02	3.154E-03	3.592E-02
6.513E 01	2.901E 00	3.673E 02	3.134E-03	3.524E-02
6.517E 01	3.130E-01	3.676E 02	3.134E-03	3.521E-02
6.537E 01	1.575E 00	3.692E 02	3.123E-03	3.473E-02
6.703E 01	1.286E 01	3.821E 02	2.958E-03	2.324E-02
6.770E 01	4.590E 00	3.867E 02	2.934E-03	2.141E-02
6.847E 01	4.880E 00	3.915E 02	2.877E-03	1.729E-02
6.919E 01	3.998E 00	3.955E 02	2.836E-03	1.461E-02
6.980E 01	3.017E 00	3.986E 02	2.801E-03	1.265E-02
7.075E 01	4.510E 00	4.031E 02	2.807E-03	1.336E-02
7.118E 01	2.159E 00	4.052E 02	2.826E-03	1.460E-02
7.271E 01	7.895E 00	4.131E 02	2.821E-03	1.464E-02
7.286E 01	7.483E-01	4.139E 02	2.829E-03	1.516E-02
7.361E 01	3.918E 00	4.178E 02	2.862E-03	1.773E-02
7.361E 01	7.905E-03	4.178E 02	2.863E-03	1.774E-02
7.494E 01	2.600E 00	4.204E 02	2.878E-03	1.931E-02
7.779E 01	5.020E 00	4.254E 02	2.863E-03	1.894E-02
8.169E 01	5.314E 00	4.307E 02	2.848E-03	1.880E-02
8.450E 01	2.747E 00	4.335E 02	2.835E-03	1.868E-02
8.736E 01	1.172E 00	4.346E 02	2.851E-03	2.064E-02
8.736E 01	0.000	4.346E 02	2.851E-03	2.064E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	3126.	(LBF)
MEASURED THRUST	3571.	(LBF)
CALCULATED SPECIFIC IMPULSE	4190.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	4787.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	1.0355	
MEASURED THRUST COEFFICIENT	1.1830	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	8238.	(LBF)
NET THRUST	3121.	(LBF)
SPECIFIC IMPULSE	4185.	(LBF-SEC/LBM)
THRUST COEFFICIENT	1.0341	

MOMENTUM AND FORCES

INLET FRICTION DRAG	126.6	(LBF)
INLET MOMENTUM CHANGE	******	(LBF)
COMBUSTOR FRICTION DRAG	203.7	(LBF)
COMBUSTOR STRUT DRAG	122.09	(LBF)
COMBUSTOR MOMENTUM CHANGE	1607.	(LBF)
NOZZLE FRICTION DRAG	86.81	(LBF)
NOZZLE STRUT DRAG	60.20	(LBF)
NOZZLE MOMENTUM CHANGE	2571.	(LBF)
NOZZLE PRESSURE INTEGRAL	2718.	(LBF)
EXTERNAL FRICTION DRAG	56.35	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1165.	(LBF)
TOTAL EXTERNAL DRAG	-1221.	(LBF)
TOTAL STRUT DRAG	182.29	(LBF)
CAVITY FORCE	-1240.	(LBF)
CALCULATED LOAD CELL FORCE	665.	(LBF)
MEASURED LOAD CELL FORCE	1108.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -148.3.	0.0.	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3866	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.271	(IN)
NOZZLE SHROUD TRAILING EDGE	73.611	(IN)
NOZZLE PLUG TRAILING EDGE	87.363	(IN)
STRUT LEADING EDGE	56.527	(IN)
STRUT TRAILING EDGE	65.127	(IN)
COMBUSTOR EXIT	62.287	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.8118	
ADDITIVE DRAG COEFFICIENT	0.0162	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2709	
DELTA PT2	0.1473	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3938	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2761	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8881	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9130	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9176	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8913	
ENTHALPY AT PO - SUPERSONIC	-11.29	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	1.32	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0231
EQUIVALENCE RATIO	0.770
COMBUSTOR EFFICIENCY	0.696
TOTAL PRESSURE RATIO	0.3079
COMBUSTOR EFFECTIVENESS	0.7475
INJECTOR DISCHARGE COEFFICIENTS	0.7376. 0.6850.

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.1280
NOZZLE COEFFICIENT - CT	1.0565
PROCESS EFFICIENCY	1.2415
KINETIC ENERGY EFFICIENCY	1.1830

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.372	
1C	44.300	
2A	48.847	
2C	46.250	
3A	54.137	E
3B	56.322	E
4	44.872	

Reading 97

t = 135.71 sec.

READING = 0097 BLOCK = 29 TIME = 135.714 MACH 5.2 PT = 210.750 TT = 2096.6 2/27/75

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

X	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	F	A/AC	HOPTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	210.750	2097	406.7(536)	1.3232	28.837	2187											
0.000	0.301	351	-44.9(84)	1.3978	28.836	919	5.170	4754	1.811	0.07607	16.842	0.8645	2555	5.620	151.7		
SPIKE TIP NS		2	0 5														
0.600	10.612	2097	406.7(536)	1.3233	28.836	2187											
0.600	9.538	2042	391.4(521)	1.3252	28.836	2160	0.404	873	2.017	0.07607	16.842	0.8645	2569	1.032	152.5		
WIND TUNNEL		3	0 0														
0.000	210.750	2097	406.7(536)	1.3232	28.837	2187											
0.000	0.304	352	-44.7(85)	1.3978	28.836	921	5.161	4752	1.811	0.07660	16.960	0.8645	2572	5.657	151.7		
SPIKE TIP NS		4	0 0														
0.600	10.612	2097	406.7(536)	1.3233	28.836	2187											
0.600	9.524	2042	391.2(520)	1.3252	28.836	2160	0.407	880	2.017	0.07660	16.960	0.8645	2572	1.047	151.7		
INLET THROAT		5	0 4														
40.400	90.796	2052	394.1(523)	1.3248	28.836	2165											
40.400	11.107	1197	163.5(203)	1.3673	28.836	1680	2.022	3397	1.863	0.58831	16.960	0.1118	2109	31.275	124.3		
INLET UPNRSK		6	0 3														
40.400	90.796	2052	394.1(523)	1.3248	28.836	2165											
40.400	9.487	1147	150.8(280)	1.3704	28.836	1646	2.120	3489	1.863	0.53857	16.960	0.1229	2138	29.205	126.1		
INLET DNNRSK		7	0 4														
40.400	58.903	2052	394.1(523)	1.3248	28.836	2165											
40.400	48.375	1955	366.9(486)	1.3284	28.836	2116	0.551	1166	1.892	0.53857	16.960	0.1229	2138	9.761	126.1		
COMBUSTOR	0	8	1 4														
40.410	90.631	2052	394.1(523)	1.3248	28.836	2165											
40.410	11.261	1202	164.8(204)	1.3670	28.836	1683	2.013	3387	1.863	0.59235	16.960	0.1118	2108	31.182	124.3		
COMBUSTOR	0	9	2 4														
41.292	76.429	2045	392.0(521)	1.3251	28.836	2161											
41.292	13.111	1305	191.4(321)	1.3605	28.836	1749	1.811	3169	1.874	0.59427	16.960	0.1114	2045	29.264	120.6		
COMBUSTOR	0	10	3 4														
41.357	75.444	2044	391.8(521)	1.3251	28.836	2161											
41.357	13.259	1313	193.4(323)	1.3601	28.836	1754	1.796	3151	1.874	0.59397	16.960	0.1115	2040	29.086	120.3		
COMBUSTOR	0	11	4 4														
41.500	73.533	2043	391.5(521)	1.3252	28.836	2160											
41.500	13.630	1330	198.1(327)	1.3590	28.836	1766	1.762	3111	1.876	0.59477	16.960	0.1113	2029	28.755	119.6		
COMBUSTOR	0	12	5 5														
42.460	65.445	2034	389.1(518)	1.3255	28.836	2156											
42.460	15.079	1402	216.9(346)	1.3546	28.836	1810	1.622	2935	1.883	0.58892	16.960	0.1124	1981	26.861	116.8		
COMBUSTOR	0	13	6 4														
44.077	59.270	2021	385.4(515)	1.3260	28.836	2149											
44.077	15.691	1444	228.0(357)	1.3522	28.836	1835	1.530	2807	1.888	0.56911	16.960	0.1164	1947	24.823	114.8		
COMBUSTOR	0	14	7 4														
44.310	58.663	2019	384.9(514)	1.3260	28.836	2149											
44.310	15.840	1450	229.6(359)	1.3518	28.836	1839	1.516	2788	1.888	0.56821	16.960	0.1165	1942	24.618	114.5		
COMBUSTOR	0	15	8 3														
44.792	57.741	2016	384.1(513)	1.3261	28.836	2147											
44.792	16.011	1458	231.6(361)	1.3514	28.836	1843	1.499	2762	1.889	0.56593	16.960	0.1170	1936	24.290	114.1		
COMBUSTOR	0	16	9 3														
44.800	57.714	2016	384.1(513)	1.3261	28.836	2147											
44.800	16.005	1458	231.7(361)	1.3514	28.836	1843	1.498	2762	1.889	0.56570	16.960	0.1171	1936	24.279	114.1		
COMBUSTOR	0	17	10 3														
45.517	57.659	2013	383.0(512)	1.3263	28.836	2145											
45.517	15.276	1438	226.3(356)	1.3525	28.836	1831	1.529	2800	1.889	0.55504	16.960	0.1193	1943	24.152	114.5		
COMBUSTOR	0	18	11 3														
46.260	58.805	2009	382.1(511)	1.3264	28.836	2143											
46.260	13.555	1384	212.1(342)	1.3557	28.836	1799	1.621	2916	1.887	0.53288	16.960	0.1243	1968	24.147	116.1		

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              P      T      H           GAMMA   MOLWT  SONV  MACH  VEL    S     W/A       W      A/AC     MOMTM    G      IVAC  PHI  ETAC
COMBUSTOR       0   19   12    3
47.310     60.910 2004  380.7( 510) 1.3266 28.836 2141
47.310     11.196 1300  190.3( 320) 1.3608 28.836 1747 1.767 3087 1.884 0.49592 16.960 0.1335   2010 23.790 118.5
COMBUSTOR       0   20   13    3
47.317     60.926 2004  380.7( 510) 1.3266 28.836 2141
47.317     11.180 1300  190.1( 320) 1.3608 28.836 1746 1.768 3088 1.884 0.49563 16.960 0.1336   2010 23.785 118.5
COMBUSTOR       0   21   14    3
48.110     62.442 2001  379.7( 509) 1.3267 28.836 2139
48.110      9.514 1235  173.3( 303) 1.3649 28.836 1705 1.886 3214 1.881 0.46217 16.960 0.1433   2043 23.085 120.5
COMBUSTOR       0   22   15    3
48.767     62.762 1998  378.9( 508) 1.3268 28.836 2138
48.767      8.129 1180  159.3( 289) 1.3683 28.836 1669
                                                       1.987 3315 1.881 0.42609 16.960 0.1554   2071 21.953 122.1
COMBUSTOR       0   23   16    3
49.297     62.469 1996  378.3( 508) 1.3269 28.836 2137
49.297      7.218 1143  149.8( 279) 1.3707 28.836 1644 2.057 3382 1.881 0.39850 16.960 0.1662   2090 20.942 123.2
COMBUSTOR       0   24   17    4
50.707     62.122 1990  376.8( 506) 1.3271 28.836 2134
50.707      5.459 1058  128.2( 258) 1.3760 28.836 1584 2.226 3527 1.880 0.33963 16.960 0.1950   2132 18.616 125.7
COMBUSTOR       0   25   18    4
52.807     60.457 1983  374.9( 504) 1.3273 28.836 2130
52.807      3.957  972  106.6( 236) 1.3811 28.836 1521 2.408 3664 1.881 0.27837 16.960 0.2379   2172 15.850 128.1
COMBUSTOR       0   26   19    3
53.307     59.735 1982  374.5( 504) 1.3274 28.836 2130
53.307      3.719  958  103.1( 232) 1.3819 28.836 1511 2.439 3685 1.882 0.26699 16.960 0.2480   2179 15.290 128.5
COMBUSTOR       0   27   20    2
54.057     59.124 1980  373.9( 503) 1.3275 28.836 2129
54.057      3.392  935   97.5( 227) 1.3832 28.836 1494 2.490 3719 1.882 0.25167 16.960 0.2631   2189 14.546 129.1
COMBUSTOR       0   28   21    4
54.817     58.030 1978  373.4( 503) 1.3275 28.836 2128
54.817      3.128  918   93.3( 223) 1.3842 28.836 1480 2.529 3744 1.883 0.23799 16.960 0.2782   2196 13.847 129.5
COMBUSTOR       0   29   22    3
55.760     57.205 1976  372.7( 502) 1.3276 28.836 2127
55.760      2.840  896   87.8( 217) 1.3854 28.836 1463 2.581 3776 1.884 0.22320 16.960 0.2967   2206 13.097 130.1
COMBUSTOR       0   30   23    6
56.242     52.309 1975  372.5( 502) 1.3277 28.836 2126
56.242      2.117  846   75.4( 205) 1.3880 28.836 1423 2.709 3855 1.890 0.17999 16.960 0.3679   2232 10.784 131.6
COMBUSTOR       0   31   24    4
56.297     52.425 1975  372.4( 502) 1.3277 28.836 2126
56.297      2.105  844   75.0( 204) 1.3881 28.836 1422 2.714 3858 1.890 0.17949 16.960 0.3689   2233 10.762 131.6
COMBUSTOR       0   32   25    4
56.437     52.660 1974  372.4( 502) 1.3277 28.836 2126
56.437      2.074  840   73.8( 203) 1.3884 28.836 1418 2.726 3865 1.889 0.17816 16.960 0.3717   2235 10.702 131.8
COMBUSTOR       0   33   26    6
56.517     53.605 1974  372.3( 502) 1.3277 28.836 2126
56.517      2.089  837   73.2( 203) 1.3885 28.836 1416 2.733 3869 1.888 0.18016 16.960 0.3675   2236 10.832 131.8
COMBUSTOR       0   34   27    6
56.797     54.652 1974  372.2( 501) 1.3277 28.836 2126
56.797      2.054  828   71.0( 200) 1.3889 28.836 1408 2.756 3882 1.887 0.17956 16.960 0.3688   2240 10.833 132.1
COMBUSTOR       0   35   28    6
57.023     55.417 1973  372.1( 501) 1.3277 28.836 2125
57.023      2.030  822   69.5( 199) 1.3892 28.836 1403 2.772 3891 1.886 0.17923 16.960 0.3695   2243 10.837 132.3
COMBUSTOR       0   36   29    3
57.747     55.789 1972  371.8( 501) 1.3277 28.836 2125
57.747      1.971  813   67.4( 197) 1.3897 28.836 1396
                                                       2.795 3903 1.885 0.17644 16.960 0.3753   2247 10.702 132.5
COMBUSTOR       0   37   30    6
58.767     56.071 1971  371.4( 501) 1.3278 28.836 2124
58.767      1.944  809   66.1( 196) 1.3899 28.836 1392 2.808 3908 1.885 0.17532 16.960 0.3777   2248 10.648 132.6
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READING = 0097  BLOCK =  29  TIME = 135.714  MACH  5.2  PT = 210.750  TT = 2096.6

               P      T     H          GAMMA  MOLWT SONV  MACH  VEL   S      W/A      W     A/AC   MOMTM    G     IVAC  PHI  ETAC
COMBUSTOR          0   38   31   5
60.777    55.441 1969  370.8( 500) 1.3279 28.836 2123
60.777     2.064  824   69.9( 199) 1.3892 28.836 1405 2.762 3880 1.885 0.18142 16.960 0.3650  2238 10.934 132.0
COMBUSTOR          0   39   32   5
62.197    54.904 1968  370.5( 500) 1.3279 28.836 2122
62.197     2.166  837   73.1( 203) 1.3885 28.836 1415 2.725 3857 1.886 0.18634 16.960 0.3553  2231 11.170 131.5
NOZZLE  AE         40   33   4
87.273    54.904 1968  370.5( 500) 1.3279 28.836 2122
87.273     0.164  402  -32.5(  47) 1.3987 28.836  985 4.559 4490 1.886 0.03418 16.960 1.9370  2448  2.386 144.4
NOZZLE  PO         41   34   4
87.273    54.904 1968  370.5( 500) 1.3279 28.836 2122
87.273     0.304  479  -13.8( 116) 1.3991 28.836 1075 4.078 4385 1.886 0.05186 16.960 1.2768  2411  3.534 142.2
FICTIVE COMBUSTR   63   56   0
62.197    90.796 1968  370.5( 500) 1.3279 28.836 2122
62.197     0.304  415  -29.3( 100) 1.3989 28.836 1001 4.468 4473 1.851 0.06105 16.960 1.0846  2442  4.243 144.0
FICTIVE NOZZLE     64   57   0
87.273  2009.902 1955  367.1( 496) 1.3283 28.837 2116
87.273     0.035   94 -107.7(  22) 1.3842 28.836  47410.277 4874 1.636 0.03418 16.960 1.9371  2587  2.589 152.5
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READING = 0097 BLOCK = 29 TIME = 135.714 MACH 5.2 PT = 210.750 TT = 2094.6

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.981E-01	7.450E-01	0.000	-2.598E-01	0.000	0.000	0.000	2.470E-02	2.518E 00	3.630E-03	0.000	0.000
1.836E 01	7.650E-01	0.000	-2.541E 01	0.000	0.000	0.000	1.634E 02	2.518E 00	3.630E-03	0.000	0.000
3.070E 01	1.310E 00	0.000	-1.095E 02	0.000	0.000	0.000	5.053E 02	4.311E 00	6.216E-03	0.000	0.000
3.508E 01	2.186E 00	0.000	-2.228E 02	0.000	0.000	0.000	6.804E 02	7.193E 00	1.037E-02	0.000	0.000
3.517E 01	2.226E 00	3.054E 00	-2.568E 02	0.000	0.000	0.000	6.846E 02	7.326E 00	1.056E-02	1.005E 01	1.449E-02
3.518E 01	2.228E 00	3.045E 00	-2.569E 02	0.000	0.000	0.000	6.849E 02	7.334E 00	1.057E-02	1.002E 01	1.445E-02
3.555E 01	2.385E 00	2.535E 00	-2.614E 02	0.000	0.000	0.000	7.219E 02	7.849E 00	1.132E-02	8.344E 00	1.203E-02
3.585E 01	2.306E 00	2.125E 00	-2.676E 02	-9.504E 01	-9.504E 01	0.000	7.521E 02	7.591E 00	1.094E-02	6.994E 00	1.008E-02
3.606E 01	2.250E 00	2.769E 00	-2.719E 02	-9.620E 01	-9.620E 01	0.000	7.739E 02	7.405E 00	1.068E-02	9.114E 00	1.314E-02
3.648E 01	2.947E 00	4.038E 00	-2.782E 02	-9.857E 01	-9.857E 01	0.000	8.175E 02	8.382E 00	1.208E-02	1.329E 01	1.916E-02
3.701E 01	2.512E 00	5.640E 00	-2.868E 02	-1.175E 02	-1.017E 02	-1.584E 01	8.735E 02	8.269E 00	1.192E-02	1.856E 01	2.676E-02
3.731E 01	3.167E 00	6.537E 00	-2.916E 02	-1.243E 02	-1.035E 02	-2.081E 01	9.054E 02	1.042E 01	1.503E-02	2.152E 01	3.102E-02
3.803E 01	4.762E 00	8.868E 00	-3.181E 02	-1.409E 02	-1.082E 02	-3.265E 01	9.844E 02	1.567E 01	2.260E-02	2.919E 01	4.208E-02
3.833E 01	6.285E 00	9.825E 00	-3.301E 02	-1.480E 02	-1.105E 02	-3.749E 01	1.018E 03	2.068E 01	2.982E-02	3.234E 01	4.662E-02
3.875E 01	8.454E 00	1.050E 01	-3.504E 02	-1.590E 02	-1.146E 02	-4.436E 01	1.065E 03	2.782E 01	4.012E-02	3.456E 01	4.982E-02
3.880E 01	8.695E 00	1.057E 01	-3.525E 02	-1.602E 02	-1.151E 02	-4.512E 01	1.071E 03	2.862E 01	4.126E-02	3.480E 01	5.018E-02
3.901E 01	9.787E 00	1.077E 01	-3.609E 02	-1.662E 02	-1.177E 02	-4.857E 01	1.095E 03	3.221E 01	4.644E-02	3.546E 01	5.112E-02
3.931E 01	9.765E 00	1.105E 01	-3.704E 02	-1.751E 02	-1.217E 02	-5.335E 01	1.129E 03	3.214E 01	4.633E-02	3.637E 01	5.243E-02
3.950E 01	9.750E 00	7.729E 00	-3.759E 02	-1.812E 02	-1.247E 02	-5.644E 01	1.152E 03	3.209E 01	4.626E-02	2.544E 01	3.668E-02
3.980E 01	1.007E 01	2.625E 00	-3.887E 02	-1.911E 02	-1.299E 02	-6.112E 01	1.186E 03	3.314E 01	4.778E-02	8.639E 00	1.246E-02
4.000E 01	1.029E 01	2.759E 00	-4.002E 02	-1.962E 02	-1.339E 02	-6.427E 01	1.210E 03	3.386E 01	4.881E-02	9.081E 00	1.309E-02
4.040E 01	1.208E 01	3.024E 00	-4.228E 02	-2.128E 02	-1.425E 02	-7.033E 01	1.257E 03	3.977E 01	5.734E-02	9.951E 00	1.435E-02
4.041E 01	1.213E 01	3.030E 00	-4.233E 02	-2.132E 02	-1.427E 02	-7.048E 01	1.258E 03	3.992E 01	5.755E-02	9.973E 00	1.438E-02
4.129E 01	1.609E 01	3.613E 00	-4.788E 02	-2.485E 02	-1.643E 02	-8.424E 01	1.362E 03	5.296E 01	7.635E-02	1.189E 01	1.714E-02
4.136E 01	1.638E 01	3.656E 00	-4.831E 02	-2.513E 02	-1.660E 02	-8.530E 01	1.370E 03	5.392E 01	7.773E-02	1.203E 01	1.735E-02
4.150E 01	1.702E 01	3.975E 00	-4.928E 02	-2.575E 02	-1.699E 02	-8.756E 01	1.387E 03	5.603E 01	8.078E-02	1.308E 01	1.886E-02
4.246E 01	1.110E 01	6.116E 00	-5.314E 02	-2.985E 02	-1.968E 02	-1.017E 02	1.502E 03	3.653E 01	5.267E-02	2.013E 01	2.902E-02
4.408E 01	1.374E 01	9.722E 00	-5.516E 02	-3.609E 02	-2.341E 02	-1.268E 02	1.698E 03	4.523E 01	6.521E-02	3.200E 01	4.613E-02
4.431E 01	1.412E 01	1.098E 01	-5.543E 02	-3.687E 02	-2.381E 02	-1.306E 02	1.726E 03	4.648E 01	6.702E-02	3.613E 01	5.208E-02
4.479E 01	1.491E 01	1.357E 01	-5.570E 02	-3.830E 02	-2.454E 02	-1.377E 02	1.785E 03	4.908E 01	7.076E-02	4.467E 01	6.440E-02
4.480E 01	1.492E 01	1.362E 01	-5.570E 02	-3.833E 02	-2.455E 02	-1.378E 02	1.786E 03	4.912E 01	7.082E-02	4.481E 01	6.460E-02
4.552E 01	1.320E 01	1.747E 01	-5.439E 02	-4.010E 02	-2.551E 02	-1.460E 02	1.874E 03	4.349E 01	6.264E-02	5.751E 01	8.292E-02
4.626E 01	1.141E 01	1.604E 01	-5.120E 02	-4.177E 02	-2.646E 02	-1.530E 02	1.965E 03	3.756E 01	5.415E-02	5.277E 01	7.609E-02
4.731E 01	8.887E 00	1.400E 01	-4.619E 02	-4.406E 02	-2.776E 02	-1.630E 02	2.095E 03	2.925E 01	4.217E-02	4.608E 01	6.643E-02
4.732E 01	8.866E 00	1.399E 01	-4.616E 02	-4.408E 02	-2.777E 02	-1.631E 02	2.096E 03	2.918E 01	4.207E-02	4.604E 01	6.637E-02
4.811E 01	6.412E 00	1.124E 01	-4.224E 02	-4.575E 02	-2.870E 02	-1.705E 02	2.195E 03	2.110E 01	3.043E-02	3.699E 01	5.333E-02
4.877E 01	8.962E 00	8.962E 00	-3.899E 02	-4.709E 02	-2.945E 02	-1.764E 02	2.277E 03	2.950E 01	4.252E-02	2.950E 01	4.252E-02
4.930E 01	7.125E 00	7.125E 00	-3.677E 02	-4.812E 02	-3.003E 02	-1.809E 02	2.344E 03	2.345E 01	3.381E-02	2.345E 01	3.381E-02
5.071E 01	6.581E 00	6.581E 00	-3.170E 02	-5.067E 02	-3.150E 02	-1.917E 02	2.521E 03	2.166E 01	3.123E-02	2.166E 01	3.123E-02
5.281E 01	2.750E 00	2.750E 00	-2.656E 02	-5.390E 02	-3.346E 02	-2.044E 02	2.788E 03	9.051E 00	1.305E-02	9.051E 00	1.305E-02
5.331E 01	3.883E 00	3.883E 00	-2.570E 02	-5.458E 02	-3.389E 02	-2.069E 02	2.851E 03	1.278E 01	1.843E-02	1.278E 01	1.843E-02
5.406E 01	3.097E 00	3.097E 00	-2.435E 02	-5.555E 02	-3.451E 02	-2.104E 02	2.947E 03	1.019E 01	1.469E-02	1.019E 01	1.469E-02
5.482E 01	2.300E 00	2.300E 00	-2.331E 02	-5.648E 02	-3.509E 02	-2.138E 02	3.044E 03	7.570E 00	1.091E-02	7.570E 00	1.091E-02
5.576E 01	3.348E 00	3.348E 00	-2.197E 02	-5.755E 02	-3.578E 02	-2.177E 02	3.166E 03	1.102E 01	1.589E-02	1.102E 01	1.589E-02
5.624E 01	3.883E 00	3.883E 00	-1.930E 02	-5.801E 02	-3.606E 02	-2.196E 02	3.209E 03	1.278E 01	1.843E-02	1.278E 01	1.843E-02
5.630E 01	1.100E 00	3.944E 00	-1.919E 02	-5.806E 02	-3.608E 02	-2.198E 02	3.216E 03	3.620E 00	5.219E-03	1.298E 01	1.872E-02
5.644E 01	1.100E 00	4.100E 00	-1.893E 02	-5.817E 02	-3.615E 02	-2.203E 02	3.234E 03	3.620E 00	5.219E-03	1.349E 01	1.945E-02
5.652E 01	4.189E 00	4.189E 00	-1.876E 02	-5.824E 02	-3.618E 02	-2.206E 02	3.244E 03	1.379E 01	1.988E-02	1.379E 01	1.988E-02
5.680E 01	4.500E 00	4.500E 00	-1.820E 02	-5.846E 02	-3.631E 02	-2.216E 02	3.280E 03	1.481E 01	2.135E-02	1.481E 01	2.135E-02
5.702E 01	3.834E 00	3.834E 00	-1.779E 02	-5.864E 02	-3.640E 02	-2.224E 02	3.309E 03	1.262E 01	1.819E-02	1.262E 01	1.819E-02
5.775E 01	1.700E 00	1.700E 00	-1.704E 02	-5.918E 02	-3.668E 02	-2.249E 02	3.402E 03	5.595E 00	8.066E-03	5.595E 00	8.066E-03
5.877E 01	4.125E 00	4.125E 00	-1.637E 02	-5.987E 02	-3.702E 02	-2.285E 02	3.532E 03	1.358E 01	1.957E-02	1.358E 01	1.957E-02
6.078E 01	3.525E 00	3.525E 00	-1.628E 02	-6.088E 02	-3.751E 02	-2.337E 02	3.790E 03	1.160E 01	1.673E-02	1.160E 01	1.673E-02
6.220E 01	1.219E 00	1.219E 00	-1.628E 02	-6.138E 02	-3.776E 02	-2.362E 02	3.972E 03	4.011E 00	5.783E-03	4.011E 00	5.783E-03
6.466E 01	2.554E 00	2.554E 00	-1.628E 02	-6.248E 02	-3.816E 02	-2.432E 02	4.289E 03	8.405E 00	1.212E-02	8.405E 00	1.212E-02
6.504E 01	1.300E 00	2.757E 00	-1.628E 02	-6.268E 02	-3.822E 02	-2.447E 02	4.337E 03	4.279E 00	6.168E-03	9.075E 00	1.308E-02

READING = 0097 BLOCK = 29 TIME = 135.714 MACH 5.2 PT = 210.750 TT = 2096.6

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CA-ALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.508E 01	1.300E 00	2.779E 00	-1.628E 02	-6.271E 02	-3.823E 02	-2.448E 02	4.342E 03	4.279E 00	6.168E-03	9.147E 00	1.319E-02
6.528E 01	1.382E 00	2.887E 00	-1.628E 02	-6.282E 02	-3.826E 02	-2.456E 02	4.368E 03	4.451E 00	6.417E-03	9.503E 00	1.370E-02
6.694E 01	1.787E 00	1.737E 00	-1.402E 02	-6.364E 02	-3.855E 02	-2.509E 02	4.563E 03	5.883E 00	8.482E-03	5.718E 00	8.244E-03
6.761E 01	1.379E 00	1.192E 00	-1.094E 02	-6.391E 02	-3.869E 02	-2.522E 02	4.665E 03	4.539E 00	6.544E-03	3.925E 00	5.658E-03
6.838E 01	9.100E-01	1.026E 00	-7.789E 01	-6.421E 02	-3.887E 02	-2.534E 02	4.760E 03	2.995E 00	4.318E-03	3.376E 00	4.868E-03
6.910E 01	1.170E 00	8.700E-01	-5.166E 01	-6.448E 02	-3.903E 02	-2.545E 02	4.848E 03	3.850E 00	5.551E-03	2.863E 00	4.128E-03
6.971E 01	1.390E 00	9.795E-01	-2.699E 01	-6.469E 02	-3.917E 02	-2.552E 02	4.922E 03	4.575E 00	6.595E-03	3.224E 00	4.648E-03
7.066E 01	1.180E 00	1.150E 00	1.142E 01	-6.498E 02	-3.937E 02	-2.561E 02	5.036E 03	3.884E 00	5.599E-03	3.785E 00	5.457E-03
7.109E 01	1.085E 00	1.067E 00	2.746E 01	-6.510E 02	-3.946E 02	-2.564E 02	5.088E 03	3.571E 00	5.148E-03	3.510E 00	5.061E-03
7.262E 01	7.936E-01	7.700E-01	7.223E 01	-6.547E 02	-3.974E 02	-2.574E 02	5.273E 03	2.612E 00	3.765E-03	2.534E 00	3.654E-03
7.277E 01	7.650E-01	8.142E-01	7.568E 01	-6.550E 02	-3.976E 02	-2.574E 02	5.290E 03	2.518E 00	3.630E-03	2.680E 00	3.863E-03
7.352E 01	7.055E-01	1.035E 00	1.047E 02	-6.566E 02	-3.987E 02	-2.579E 02	5.374E 03	2.322E 00	3.348E-03	3.406E 00	4.911E-03
7.352E 01	7.052E-01	1.036E 00	1.067E 02	-6.566E 02	-3.987E 02	-2.579E 02	5.375E 03	2.321E 00	3.346E-03	3.410E 00	4.917E-03
7.485E 01	6.000E-01	0.000	1.204E 02	-6.592E 02	-4.003E 02	-2.589E 02	5.426E 03	1.975E 00	2.847E-03	0.000	0.000
7.770E 01	6.100E-01	0.000	1.446E 02	-6.619E 02	-4.030E 02	-2.589E 02	5.525E 03	2.008E 00	2.894E-03	0.000	0.000
8.160E 01	1.140E 00	0.000	1.820E 02	-6.643E 02	-4.054E 02	-2.589E 02	5.630E 03	3.752E 00	5.409E-03	0.000	0.000
8.441E 01	1.075E 00	0.000	2.066E 02	-6.684E 02	-4.075E 02	-2.589E 02	5.684E 03	3.538E 00	5.101E-03	0.000	0.000
8.727E 01	8.800E-01	0.000	2.302E 02	-6.705E 02	-4.116E 02	-2.589E 02	5.707E 03	2.896E 00	4.176E-03	0.000	0.000
8.727E 01	8.796E-01	0.000	2.302E 02	-6.705E 02	-4.116E 02	-2.589E 02	5.707E 03	2.895E 00	4.174E-03	0.000	0.000

READING = 0097 BLOCK = 29 TIME = 135.714 MACH 5.2 PT = 210.750 TT = 2096.6

X	DDRAG	CDRAG	CF	HC
4.040E 01	6.763E 01	6.763E 01	2.496E-03	2.993E-02
4.041E 01	9.222E-02	6.772E 01	2.499E-03	3.019E-02
4.129E 01	8.077E 00	7.580E 01	2.626E-03	3.223E-02
4.136E 01	5.939E-01	7.639E 01	2.636E-03	3.236E-02
4.150E 01	1.306E 00	7.770E 01	2.657E-03	3.274E-02
4.246E 01	8.631E 00	8.633E 01	2.745E-03	3.377E-02
4.408E 01	1.403E 01	1.004E 02	2.805E-03	3.350E-02
4.431E 01	1.966E 00	1.023E 02	2.815E-03	3.359E-02
4.479E 01	4.058E 00	1.064E 02	2.829E-03	3.365E-02
4.480E 01	6.856E-02	1.065E 02	2.829E-03	3.364E-02
4.552E 01	6.006E 00	1.125E 02	2.816E-03	3.277E-02
4.626E 01	6.165E 00	1.186E 02	2.762E-03	3.066E-02
4.731E 01	8.485E 00	1.271E 02	2.675E-03	2.736E-02
4.732E 01	5.601E-02	1.272E 02	2.675E-03	2.734E-02
4.811E 01	6.112E 00	1.333E 02	2.604E-03	2.462E-02
4.877E 01	4.764E 00	1.380E 02	2.543E-03	2.203E-02
4.930E 01	3.595E 00	1.416E 02	2.500E-03	2.016E-02
5.071E 01	8.601E 00	1.502E 02	2.399E-03	1.633E-02
5.281E 01	1.076E 01	1.610E 02	2.293E-03	1.267E-02
5.331E 01	2.266E 00	1.633E 02	2.275E-03	1.204E-02
5.406E 01	3.232E 00	1.665E 02	2.247E-03	1.118E-02
5.482E 01	3.091E 00	1.696E 02	2.225E-03	1.045E-02
5.576E 01	3.611E 00	1.732E 02	2.197E-03	9.658E-03
5.624E 01	1.128E 00	1.743E 02	2.121E-03	7.483E-03
5.630E 01	1.608E-01	1.745E 02	2.118E-03	7.453E-03
5.644E 01	4.033E-01	1.749E 02	2.112E-03	7.375E-03
5.652E 01	2.322E-01	1.751E 02	2.103E-03	7.420E-03
5.680E 01	8.095E-01	1.759E 02	2.087E-03	7.335E-03
5.702E 01	6.502E-01	1.766E 02	2.076E-03	7.275E-03
5.779E 01	2.063E 00	1.786E 02	2.060E-03	7.103E-03
5.877E 01	2.566E 00	1.815E 02	2.049E-03	7.016E-03
6.078E 01	5.721E 00	1.872E 02	2.062E-03	7.312E-03
6.220E 01	4.163E 00	1.914E 02	2.072E-03	7.554E-03
8.727E 01	7.161E 00	1.986E 02	2.108E-03	7.299E-03
6.466E 01	7.675E 00	2.073E 02	2.089E-03	8.456E-03
6.504E 01	1.145E 00	2.084E 02	2.046E-03	7.150E-03
6.508E 01	1.135E-01	2.085E 02	2.047E-03	7.177E-03
6.528E 01	5.749E-01	2.091E 02	2.052E-03	7.378E-03
6.694E 01	4.618E 00	2.137E 02	2.013E-03	6.426E-03
6.761E 01	1.493E 00	2.152E 02	1.957E-03	5.093E-03
6.838E 01	1.423E 00	2.166E 02	1.907E-03	4.125E-03
6.910E 01	1.217E 00	2.179E 02	1.912E-03	4.281E-03
6.971E 01	1.095E 00	2.190E 02	1.935E-03	4.774E-03
7.066E 01	1.764E 00	2.207E 02	1.928E-03	4.706E-03
7.109E 01	7.760E-01	2.215E 02	1.913E-03	4.434E-03
7.262E 01	2.412E 00	2.239E 02	1.857E-03	3.491E-03
7.277E 01	2.023E-01	2.241E 02	1.858E-03	3.516E-03
7.352E 01	1.028E 00	2.251E 02	1.871E-03	3.773E-03
7.352E 01	2.034E-03	2.251E 02	1.871E-03	3.775E-03
7.485E 01	5.768E-01	2.257E 02	1.808E-03	2.856E-03
7.770E 01	9.577E-01	2.267E 02	1.801E-03	2.876E-03
8.160E 01	1.285E 00	2.280E 02	1.888E-03	4.538E-03
8.441E 01	7.910E-01	2.287E 02	1.870E-03	4.324E-03
8.727E 01	3.007E-01	2.290E 02	1.829E-03	3.711E-03
8.727E 01	0.000	2.290E 02	1.829E-03	3.709E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-12.	(LBF)
MEASURED THRUST	-156.	(LBF)
CALCULATED SPECIFIC IMPULSE	-12.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-156.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.0083	
MEASURED THRUST COEFFICIENT	-.1076	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	67.6	(LBF)
INLET MOMENTUM CHANGE	-490.5	(LBF)
COMBUSTOR FRICTION DRAG	123.8	(LBF)
COMBUSTOR STRUT DRAG	14.36	(LBF)
COMBUSTOR MOMENTUM CHANGE	122.	(LBF)
NOZZLE FRICTION DRAG	29.45	(LBF)
NOZZLE STRUT DRAG	7.08	(LBF)
NOZZLE MOMENTUM CHANGE	356.	(LBF)
NOZZLE PRESSURE INTEGRAL	393.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-724.	(LBF)
TOTAL STRUT DRAG	21.44	(LBF)
CAVITY FORCE	-1269.	(LBF)
CALCULATED LOAD CELL FORCE	-2005.	(LBF)
MEASURED LOAD CELL FORCE	-2149.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2969	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.181	(IN)
NOZZLE SHROUD TRAILING EDGE	73.521	(IN)
NOZZLE PLUG TRAILING EDGE	87.273	(IN)
STRUT LEADING EDGE	56.437	(IN)
STRUT TRAILING EDGE	65.037	(IN)
COMBUSTOR EXIT	62.197	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8645	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2745	
DELTA PT2	0.0716	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4308	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2795	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9020	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9168	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9270	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8963	
ENTHALPY AT PO - SUPERSONIC	-24.30	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-10.46	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.6047
COMBUSTOR EFFECTIVENESS	0.9067
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0566
NOZZLE COEFFICIENT - CT	1.0105
PROCESS EFFICIENCY	1.2910
KINETIC ENERGY EFFICIENCY	1.0855

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.282	
1C	44.300	
2A	48.757	
2C	46.250	
3A	54.047	
3B	56.232	
4	44.782	

Reading 97

t = 156.41 sec.

READING = 0097 BLOCK = 52 TIME = 156,414 MACH 5.2 PT = 209.750 TT = 2180.0

2/27/75

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	O	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	209.750	2180	430.3(559)	1.3203	28.837	2228											
0.000	0.296	366	-41.2(88)	1.3981	28.836	939	5.170	4857	1.822	0.07340	16.247	0.8643	2518	5.940	155.0		
SPIKE TIP NS		2	0 6														
0.600	10.725	2180	430.3(559)	1.3204	28.836	2228											
0.600	9.704	2128	415.4(545)	1.3222	28.836	2202	0.392	862	2.027	0.07340	16.247	0.8643	2564	0.984	159.0		
WIND TUNNEL		3	0 0														
0.000	209.750	2180	430.3(559)	1.3203	28.837	2228											
0.000	0.311	371	-40.0(89)	1.3982	28.836	946	5.129	4851	1.822	0.07579	16.778	0.8643	2599	5.714	154.9		
SPIKE TIP NS		4	0 0														
0.600	10.725	2180	430.3(559)	1.3204	28.836	2228											
0.600	9.629	2123	414.2(543)	1.3223	28.836	2200	0.407	896	2.027	0.07579	16.778	0.8643	2599	1.055	154.9		
INLET THROAT		5	0 4														
40.400	99.080	2117	412.4(542)	1.3225	28.836	2197											
40.400	10.058	1178	158.7(288)	1.3685	28.836	1667	2.137	3563	1.865	0.56777	16.778	0.1117	2146	32.468	127.9		
INLET UPNRBK		6	0 2														
40.400	99.080	2117	412.4(542)	1.3225	28.836	2197											
40.400	9.014	1144	149.9(279)	1.3706	28.836	1644	2.205	3624	1.865	0.53302	16.778	0.1229	2174	30.021	129.6		
INLET DNNRBK		7	0 4														
40.400	50.183	2117	412.4(542)	1.3225	28.836	2197											
40.400	49.873	2022	385.6(515)	1.3259	28.836	2150	0.539	1156	1.900	0.53302	16.778	0.1229	2174	9.591	129.6		
COMBUSTOR	0	8	1 4														
40.410	98.980	2117	412.4(542)	1.3225	28.836	2197											
40.410	10.648	1196	163.4(293)	1.3673	28.836	1679	2.102	3530	1.865	0.58625	16.778	0.1117	2145	32.158	127.9		
COMBUSTOR	0	9	2 4														
41.294	83.054	2105	409.0(538)	1.3230	28.836	2191											
41.294	12.268	1294	188.6(318)	1.3612	28.836	1743	1.906	3321	1.876	0.58751	16.778	0.1115	2082	30.322	124.1		
COMBUSTOR	0	10	3 4														
41.359	82.126	2104	408.8(538)	1.3230	28.836	2191											
41.359	12.422	1302	190.6(320)	1.3607	28.836	1748	1.891	3304	1.877	0.58843	16.778	0.1113	2077	30.217	123.8		
COMBUSTOR	0	11	4 4														
41.500	79.891	2102	408.2(537)	1.3231	28.836	2190											
41.500	12.721	1318	194.9(324)	1.3597	28.836	1758	1.859	3267	1.878	0.58842	16.778	0.1113	2067	29.878	123.2		
COMBUSTOR	0	12	5 5														
42.460	71.225	2089	404.5(534)	1.3235	28.836	2183											
42.460	13.849	1380	211.0(340)	1.3560	28.836	1796	1.732	3111	1.884	0.58261	16.778	0.1124	2021	28.167	120.5		
COMBUSTOR	0	13	6 4														
44.079	65.153	2067	398.4(528)	1.3243	28.836	2173											
44.079	14.042	1402	216.9(346)	1.3546	28.836	1810	1.666	3014	1.888	0.56330	16.778	0.1163	1990	26.385	118.6		
COMBUSTOR	0	14	7 3														
44.310	64.519	2065	397.6(527)	1.3244	28.836	2171											
44.310	14.119	1406	217.8(347)	1.3544	28.836	1812	1.656	3000	1.888	0.56226	16.778	0.1165	1986	26.210	118.3		
COMBUSTOR	0	15	8 3														
44.794	63.654	2059	396.2(525)	1.3246	28.836	2169											
44.794	14.162	1408	218.4(348)	1.3543	28.836	1813	1.645	2982	1.888	0.55978	16.778	0.1170	1980	25.944	118.0		
COMBUSTOR	0	16	9 3														
44.800	63.638	2059	396.2(525)	1.3246	28.836	2169											
44.800	14.166	1408	218.4(348)	1.3543	28.836	1813	1.645	2982	1.888	0.55979	16.778	0.1170	1980	25.940	118.0		
COMBUSTOR	0	17	10 4														
45.519	64.279	2053	394.3(523)	1.3248	28.836	2165											
45.519	13.406	1379	210.9(340)	1.3560	28.836	1796	1.687	3029	1.887	0.54929	16.778	0.1193	1989	25.856	118.5		
COMBUSTOR	0	18	11 3														
46.260	66.712	2046	392.5(522)	1.3251	28.836	2162											
46.260	11.834	1317	194.7(324)	1.3598	28.836	1757	1.790	3146	1.883	0.52733	16.778	0.1242	2017	25.781	120.2		

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                 P      T     H          GAMMA  MOLWT SONV  MACH  VEL    S      W/A      W     A/AC   MOMTM    Q     IVAC  PHI  ETAC
COMBUSTOR        0   19   12    3
47.310      70.486 2037   389.8( 519) 1.3254 28.836 2157
47.310       9.761 1227   171.3( 301) 1.3654 28.836 1700 1.945 3307 1.878 0.49076 16.778 0.1335   2058 25.219 122.7
COMBUSTOR        0   20   13    3
47.319      70.523 2037   389.8( 519) 1.3254 28.836 2157
47.319       9.748 1227   171.2( 301) 1.3654 28.836 1699 1.947 3308 1.878 0.49053 16.778 0.1335   2058 25.216 122.7
COMBUSTOR        0   21   14    3
48.110      74.105 2029   387.8( 517) 1.3257 28.836 2154
48.110       8.214 1151   151.9( 281) 1.3701 28.836 1649 2.083 3436 1.874 0.45736 16.778 0.1432   2093 24.419 124.7
COMBUSTOR        0   22   15   19
48.759      48.597 1957   414.0( 584) 1.3345 24.365 2309
48.759      12.194 1370   228.0( 398) 1.3615 24.365 1951
                                                          1.563 3050 2.165 0.42807 17.016 0.1552   2098 20.289 123.3 0.49 0.02
COMBUSTOR        0   23   16    2
48.769      48.539 1958   413.9( 584) 1.3345 24.366 2309
48.769      12.187 1371   228.0( 399) 1.3614 24.366 1952 1.563 3050 2.166 0.42751 17.016 0.1554   2098 20.266 123.3 0.49 0.02
COMBUSTOR        0   24   17    4
49.299      45.682 2026   412.4( 606) 1.3312 24.432 2343
49.299      11.775 1432   223.3( 417) 1.3575 24.432 1989 1.546 3076 2.180 0.39983 17.016 0.1662   2128 19.111 125.0 0.49 0.06
COMBUSTOR        0   25   18    5
50.709      35.675 2546   407.8( 770) 1.3068 24.936 2576
50.709      20.137 2222   299.3( 663) 1.3180 24.937 2416 0.964 2330 2.257 0.34076 17.016 0.1950   2238 12.339 131.5 0.49 0.30
COMBUSTOR        0   26   19    4
52.809      33.443 2835   397.4( 871) 1.2932 25.041 2698
52.809      23.950 2627   325.1( 799) 1.3003 25.042 2604 0.731 1903 2.302 0.28112 17.128 0.2379   2472  8.313 144.3 0.51 0.43
COMBUSTOR        0   27   20    4
53.309      33.071 2933   395.5( 903) 1.2885 25.147 2734
53.309      24.183 2733   325.4( 834) 1.2953 25.148 2646 0.708 1872 2.310 0.26964 17.128 0.2480   2533  7.846 147.9 0.51 0.47
COMBUSTOR        0   28   21    4
54.049      31.970 2944   402.8( 958) 1.2895 23.747 2819
54.049      23.015 2733   324.8( 881) 1.2967 23.747 2724 0.725 1976 2.423 0.25579 17.224 0.2629   2608  7.856 151.4 0.70 0.38
COMBUSTOR        0   29   22    2
54.059      31.959 2948   402.8( 959) 1.2894 23.750 2821
54.059      23.000 2736   324.6( 882) 1.2966 23.750 2725 0.726 1978 2.423 0.25559 17.224 0.2631   2609  7.858 151.5 0.70 0.38
COMBUSTOR        0   30   23    4
54.819      31.025 3226   399.7(1056) 1.2757 24.034 2918
54.819      21.800 2986   309.2( 968) 1.2842 24.035 2817 0.756 2129 2.445 0.24170 17.224 0.2782   2693  7.996 156.4 0.70 0.48
COMBUSTOR        0   31   24    4
55.760      30.793 3289   395.8(1078) 1.2724 24.108 2938
55.760      23.107 3091   320.3(1005) 1.2796 24.110 2856 0.680 1944 2.449 0.22670 17.224 0.2966   2796  6.847 162.3 0.70 0.51
COMBUSTOR        0   32   25    3
56.234      29.227 3543   400.6(1230) 1.2599 23.094 3100
56.234      23.765 3394   338.8(1171) 1.2658 23.097 3041 0.578 1758 2.577 0.18394 17.320 0.3676   3164  5.024 183.8 0.90 0.51
COMBUSTOR        0   33   26    2
56.244      29.228 3542   400.5(1229) 1.2599 23.093 3100
56.244      23.779 3394   339.0(1171) 1.2659 23.096 3041 0.577 1755 2.577 0.18381 17.320 0.3679   3165  5.014 183.9 0.90 0.51
COMBUSTOR        0   34   27    4
56.299      28.730 3863   400.3(1350) 1.2399 23.422 3189
56.299      22.503 3684   322.1(1279) 1.2481 23.433 3124 0.633 1978 2.596 0.18323 17.320 0.3691   3192  5.633 184.3 0.90 0.61
COMBUSTOR        0   35   28    3
56.439      28.727 3874   399.8(1354) 1.2391 23.435 3191
56.439      22.600 3698   322.8(1284) 1.2473 23.445 3127 0.668 1963 2.596 0.18201 17.320 0.3715   3207  5.552 185.2 0.90 0.61
COMBUSTOR        0   36   29   21
56.519      26.317 4788   399.5(1702) 1.1595 24.436 3361
56.519      24.161 4695   338.4(1663) 1.1623 24.494 3328 0.525 1749 2.622 0.18402 17.320 0.3675   3216  5.002 185.7 0.90 1.00
COMBUSTOR        0   37   30   21
56.799      28.604 4788   398.5(1702) 1.1597 24.438 3361
56.799      24.550 4698   339.6(1664) 1.1624 24.494 3330 0.515 1717 2.621 0.18338 17.320 0.3688   3243  4.892 187.2 0.90 1.00
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	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
57.025	28.633	4787	397.6(1701)	1.1597	24.439	3361											
57.025	24.003	4684	329.8(1658)	1.1630	24.504	3324	0.554	1842	2.620	0.18306	17.320	0.3694	3263	5.241	186.4	0.90	1.00
COMBUSTOR	0	39	32 21														
57.749	28.536	4783	394.9(1700)	1.1599	24.442	3359											
57.749	22.250	4637	299.8(1639)	1.1647	24.532	3308	0.659	2182	2.620	0.18019	17.320	0.3753	3313	6.109	191.3	0.90	1.00
COMBUSTOR	0	40	33 21														
58.769	28.990	4780	391.1(1698)	1.1603	24.449	3358											
58.769	23.812	4664	315.7(1650)	1.1640	24.519	3318	0.585	1943	2.618	0.17904	17.320	0.3777	3349	5.405	193.4	0.90	1.00
COMBUSTOR	0	41	34 21														
60.779	29.380	4771	383.2(1694)	1.1610	24.460	3356											
60.779	21.675	4591	267.8(1619)	1.1673	24.566	3293	0.730	2404	2.615	0.18527	17.320	0.3650	3320	6.921	191.7	0.90	1.00
COMBUSTOR	0	42	35 200														
62.199	29.907	4765	377.4(1692)	1.1616	24.469	3354											
62.199	17.587	4448	179.5(1560)	1.1740	24.643	3246	0.970	3147	2.613	0.19030	17.320	0.3553	3295	9.506	190.2	0.90	1.00
COMBUSTOR REGEN		43	36 5														
62.199	29.907	4826	425.6(1718)	1.1583	24.409	3374											
62.199	13.475	4354	129.2(1521)	1.1769	24.673	3213	1.198	3851	2.623	0.19030	17.320	0.3553	3300	11.389	190.5	0.90	1.00
NOZZLE AE		44	37 4														
87.275	29.907	4765	377.4(1669)	1.1616	24.469	3354											
87.275	0.729	2468	-696.0(788)	1.2786	24.905	2510	2.920	7329	2.613	0.03491	17.320	1.9372	4307	3.976	248.7	0.90	1.00
NOZZLE PU		45	38 4														
87.275	29.907	4765	377.4(1669)	1.1616	24.469	3354											
87.275	0.311	2041	-849.2(636)	1.2951	24.905	2297	3.411	7835	2.613	0.01922	17.320	3.5182	4497	2.340	259.7	0.90	1.00
NOZZLE AE REGEN		46	39 4														
87.275	29.907	4826	425.6(1718)	1.1583	24.409	3374											
87.275	0.747	2550	-666.0(818)	1.2756	24.905	2548	2.900	7391	2.623	0.03491	17.320	1.9373	4349	4.009	251.1	0.90	1.00
NOZZLE PU REGEN		47	40 4														
87.275	29.907	4826	425.6(1718)	1.1583	24.409	3374											
87.275	0.311	2100	-828.5(656)	1.2926	24.905	2328	3.403	7922	2.623	0.01889	17.320	3.5804	4549	2.325	262.7	0.90	1.00
FICTIVE COMBUSTR		69	62 0														
62.199	99.080	4867	377.4(1731)	1.1745	24.582	3400											
62.199	0.311	1533	-1021.7(463)	1.3209	24.905	2010	4.162	8367	2.516	0.02733	17.320	2.4742	4701	3.554	271.4	0.90	1.00
FICTIVE NOZZLE		70	63 0														
87.275	14.418	4638	329.3(1640)	1.1576	24.454	3304											
87.275	1.023	3019	-487.9(994)	1.2569	24.900	2753	2.323	6395	2.662	0.03491	17.320	1.9371	3950	3.469	228.1	0.90	1.00

XABS	P-IB	P-OB	PDA	QOX	W-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.981E-01	7.200E-01	0.000	-2.624E-01	0.000	0.000	0.000	2.470E-02	2.318E 00	3.433E-03	0.000	0.000
1.836E 01	7.200E-01	0.000	-2.393E 01	0.000	0.000	0.000	1.634E 02	2.318E 00	3.433E-03	0.000	0.000
3.070E 01	1.255E 00	0.000	-1.040E 02	0.000	0.000	0.000	5.053E 02	4.040E 00	5.983E-03	0.000	0.000
3.508E 01	2.144E 00	0.000	-2.141E 02	0.000	0.000	0.000	6.804E 02	6.903E 00	1.022E-02	0.000	0.000
3.518E 01	2.175E 00	3.040E 00	-2.480E 02	0.000	0.000	0.000	6.847E 02	7.003E 00	1.037E-02	9.785E 00	1.449E-02
3.518E 01	2.177E 00	3.031E 00	-2.481E 02	0.000	0.000	0.000	6.850E 02	7.009E 00	1.038E-02	9.757E 00	1.445E-02
3.559E 01	2.295E 00	2.490E 00	-2.522E 02	0.000	0.000	0.000	7.218E 02	7.388E 00	1.094E-02	8.016E 00	1.187E-02
3.589E 01	2.242E 00	2.050E 00	-2.582E 02	-1.094E 02	-1.094E 02	0.000	7.521E 02	7.218E 00	1.069E-02	6.599E 00	9.774E-03
3.606E 01	2.205E 00	2.690E 00	-2.623E 02	-1.107E 02	-1.107E 02	0.000	7.738E 02	7.098E 00	1.051E-02	8.659E 00	1.282E-02
3.648E 01	2.487E 00	3.963E 00	-2.687E 02	-1.134E 02	-1.134E 02	0.000	8.174E 02	8.007E 00	1.186E-02	1.276E 01	1.889E-02
3.701E 01	2.467E 00	5.569E 00	-2.765E 02	-1.460E 02	-1.170E 02	-2.899E 01	8.734E 02	7.943E 00	1.176E-02	1.793E 01	2.655E-02
3.731E 01	3.140E 00	6.475E 00	-2.817E 02	-1.573E 02	-1.192E 02	-3.814E 01	9.055E 02	1.011E 01	1.497E-02	2.084E 01	3.087E-02
3.803E 01	4.762E 00	8.835E 00	-3.081E 02	-1.844E 02	-1.247E 02	-5.974E 01	9.843E 02	1.533E 01	2.271E-02	2.844E 01	4.212E-02
3.833E 01	6.291E 00	9.812E 00	-3.202E 02	-1.961E 02	-1.274E 02	-6.863E 01	1.018E 03	2.025E 01	2.999E-02	3.159E 01	4.678E-02
3.879E 01	8.445E 00	1.036E 01	-3.406E 02	-2.138E 02	-1.327E 02	-8.110E 01	1.065E 03	2.718E 01	4.026E-02	3.335E 01	4.940E-02
3.880E 01	8.695E 00	1.042E 01	-3.428E 02	-2.159E 02	-1.334E 02	-8.255E 01	1.071E 03	2.799E 01	4.146E-02	3.356E 01	4.970E-02
3.901E 01	9.779E 00	1.066E 01	-3.513E 02	-2.255E 02	-1.367E 02	-8.877E 01	1.095E 03	3.147E 01	4.660E-02	3.432E 01	5.084E-02
3.931E 01	9.691E 00	1.100E 01	-3.609E 02	-2.399E 02	-1.423E 02	-9.754E 01	1.129E 03	3.120E 01	4.620E-02	3.541E 01	5.244E-02
3.950E 01	9.637E 00	7.753E 00	-3.661E 02	-2.495E 02	-1.464E 02	-1.031E 02	1.151E 03	3.102E 01	4.595E-02	2.496E 01	3.696E-02
3.980E 01	9.983E 00	2.675E 00	-3.787E 02	-2.654E 02	-1.538E 02	-1.117E 02	1.186E 03	3.214E 01	4.760E-02	8.611E 00	1.275E-02
4.000E 01	1.022E 01	2.822E 00	-3.900E 02	-2.767E 02	-1.594E 02	-1.174E 02	1.210E 03	3.288E 01	4.870E-02	9.084E 00	1.345E-02
4.040E 01	1.204E 01	3.114E 00	-4.122E 02	-2.999E 02	-1.716E 02	-1.284E 02	1.257E 03	3.876E 01	5.741E-02	1.002E 01	1.485E-02
4.041E 01	1.209E 01	3.121E 00	-4.127E 02	-3.005E 02	-1.719E 02	-1.286E 02	1.258E 03	3.891E 01	5.763E-02	1.005E 01	1.488E-02
4.129E 01	1.612E 01	3.767E 00	-4.676E 02	-3.561E 02	-2.027E 02	-1.534E 02	1.362E 03	5.190E 01	7.686E-02	1.212E 01	1.796E-02
4.136E 01	1.642E 01	3.814E 00	-4.719E 02	-3.605E 02	-2.051E 02	-1.553E 02	1.370E 03	5.285E 01	7.828E-02	1.228E 01	1.818E-02
4.150E 01	1.706E 01	4.122E 00	-4.813E 02	-3.699E 02	-2.106E 02	-1.593E 02	1.387E 03	5.492E 01	8.135E-02	1.327E 01	1.965E-02
4.246E 01	1.035E 01	6.217E 00	-5.180E 02	-4.337E 02	-2.493E 02	-1.844E 02	1.502E 03	3.332E 01	4.934E-02	2.001E 01	2.964E-02
4.408E 01	1.349E 01	9.750E 00	-5.345E 02	-5.347E 02	-3.054E 02	-2.293E 02	1.698E 03	4.342E 01	6.431E-02	3.139E 01	4.648E-02
4.431E 01	1.394E 01	1.114E 01	-5.369E 02	-5.480E 02	-3.117E 02	-2.362E 02	1.726E 03	4.486E 01	6.645E-02	3.586E 01	5.311E-02
4.479E 01	1.488E 01	1.405E 01	-5.386E 02	-5.727E 02	-3.238E 02	-2.489E 02	1.785E 03	4.788E 01	7.092E-02	4.523E 01	6.699E-02
4.480E 01	1.489E 01	1.409E 01	-5.387E 02	-5.730E 02	-3.240E 02	-2.491E 02	1.786E 03	4.792E 01	7.098E-02	4.535E 01	6.717E-02
4.552E 01	1.308E 01	1.841E 01	-5.229E 02	-6.044E 02	-3.409E 02	-2.634E 02	1.874E 03	4.211E 01	6.237E-02	5.927E 01	8.778E-02
4.626E 01	1.122E 01	1.631E 01	-4.885E 02	-6.345E 02	-3.590E 02	-2.755E 02	1.965E 03	3.613E 01	5.351E-02	5.251E 01	7.777E-02
4.731E 01	8.587E 00	1.334E 01	-4.388E 02	-6.703E 02	-3.858E 02	-2.925E 02	2.095E 03	2.764E 01	4.094E-02	4.293E 01	6.359E-02
4.732E 01	8.566E 00	1.331E 01	-4.384E 02	-6.706E 02	-3.860E 02	-2.926E 02	2.096E 03	2.757E 01	4.084E-02	4.285E 01	6.347E-02
4.811E 01	6.637E 00	1.270E 01	-3.977E 02	-7.135E 02	-4.071E 02	-3.064E 02	2.195E 03	2.137E 01	3.164E-02	4.088E 01	6.054E-02
4.876E 01	1.219E 01	1.219E 01	-3.580E 02	-7.440E 02	-4.249E 02	-3.191E 02	2.276E 03	3.925E 01	5.814E-02	3.925E 01	5.814E-02
4.877E 01	1.219E 01	1.219E 01	-3.574E 02	-7.445E 02	-4.252E 02	-3.193E 02	2.277E 03	3.923E 01	5.810E-02	3.923E 01	5.810E-02
4.930E 01	1.177E 01	1.177E 01	-3.243E 02	-7.709E 02	-4.402E 02	-3.307E 02	2.344E 03	3.790E 01	5.614E-02	3.790E 01	5.614E-02
5.071E 01	2.014E 01	2.014E 01	-2.063E 02	-8.482E 02	-4.817E 02	-3.664E 02	2.521E 03	6.482E 01	9.601E-02	6.482E 01	9.601E-02
5.281E 01	2.395E 01	2.395E 01	3.642E 01	-9.802E 02	-5.482E 02	-4.320E 02	2.788E 03	7.709E 01	1.142E-01	7.709E 01	1.142E-01
5.331E 01	2.418E 01	2.418E 01	9.898E 01	-1.014E 03	-5.648E 02	-4.491E 02	2.851E 03	7.785E 01	1.153E-01	7.785E 01	1.153E-01
5.405E 01	2.302E 01	2.302E 01	1.891E 02	-1.065E 03	-5.900E 02	-4.746E 02	2.946E 03	7.409E 01	1.097E-01	7.409E 01	1.097E-01
5.406E 01	2.300E 01	2.300E 01	1.903E 02	-1.065E 03	-5.904E 02	-4.750E 02	2.947E 03	7.404E 01	1.097E-01	7.404E 01	1.097E-01
5.482E 01	2.180E 01	2.180E 01	2.771E 02	-1.119E 03	-6.170E 02	-5.015E 02	3.045E 03	7.017E 01	1.039E-01	7.017E 01	1.039E-01
5.576E 01	2.311E 01	2.311E 01	3.830E 02	-1.186E 03	-6.511E 02	-5.347E 02	3.166E 03	7.438E 01	1.102E-01	7.438E 01	1.102E-01
5.623E 01	2.377E 01	2.377E 01	7.717E 02	-1.218E 03	-6.663E 02	-5.517E 02	3.208E 03	7.650E 01	1.133E-01	7.650E 01	1.133E-01
5.624E 01	2.378E 01	2.378E 01	7.733E 02	-1.219E 03	-6.665E 02	-5.520E 02	3.209E 03	7.654E 01	1.134E-01	7.654E 01	1.134E-01
5.630E 01	2.115E 01	2.386E 01	7.801E 02	-1.222E 03	-6.680E 02	-5.540E 02	3.216E 03	6.808E 01	1.008E-01	7.679E 01	1.137E-01
5.644E 01	2.115E 01	2.405E 01	7.957E 02	-1.231E 03	-6.719E 02	-5.590E 02	3.234E 03	6.808E 01	1.008E-01	7.742E 01	1.147E-01
5.652E 01	2.416E 01	2.416E 01	8.054E 02	-1.236E 03	-6.741E 02	-5.619E 02	3.244E 03	7.777E 01	1.152E-01	7.777E 01	1.152E-01
5.680E 01	2.455E 01	2.455E 01	8.372E 02	-1.254E 03	-6.818E 02	-5.720E 02	3.280E 03	7.903E 01	1.170E-01	7.903E 01	1.170E-01
5.702E 01	2.400E 01	2.400E 01	8.608E 02	-1.268E 03	-6.881E 02	-5.802E 02	3.309E 03	7.726E 01	1.144E-01	7.726E 01	1.144E-01
5.775E 01	2.225E 01	2.225E 01	9.235E 02	-1.315E 03	-7.087E 02	-6.065E 02	3.402E 03	7.162E 01	1.061E-01	7.162E 01	1.061E-01
5.877E 01	2.381E 01	2.381E 01	9.768E 02	-1.362E 03	-7.384E 02	-6.435E 02	3.532E 03	7.665E 01	1.135E-01	7.665E 01	1.135E-01
6.078E 01	2.167E 01	2.167E 01	9.821E 02	-1.518E 03	-8.012E 02	-7.173E 02	3.790E 03	6.977E 01	1.033E-01	6.977E 01	1.033E-01

READING = 0097 BLOCK = 52 TIME = 156.414 MACH 5.2 PT = 209.750 TT = 2160.0

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSU	P-IB/PTO	P-OB/PSU	P-OB/PTO
6.220E 01	1.759E 01	1.759E 01	9.821E 02	-1.619E 03	-8.513E 02	-7.677E 02	3.972E 03	5.661E 01	8.385E-02	5.661E 01	8.385E-02
6.466E 01	1.399E 01	1.399E 01	9.821E 02	-1.808E 03	-9.553E 02	-8.529E 02	4.289E 03	4.503E 01	6.669E-02	4.503E 01	6.669E-02
6.504E 01	1.215E 01	1.344E 01	9.821E 02	-1.839E 03	-9.731E 02	-8.658E 02	4.337E 03	3.911E 01	5.793E-02	4.326E 01	6.407E-02
6.508E 01	1.215E 01	1.338E 01	9.821E 02	-1.842E 03	-9.750E 02	-8.671E 02	4.342E 03	3.911E 01	5.793E-02	4.307E 01	6.379E-02
6.528E 01	1.148E 01	1.309E 01	9.821E 02	-1.858E 03	-9.844E 02	-8.735E 02	4.368E 03	3.694E 01	5.472E-02	4.213E 01	6.240E-02
6.694E 01	5.887E 00	1.762E 00	1.070E 03	-1.974E 03	-1.048E 03	-9.260E 02	4.583E 03	1.895E 01	2.807E-02	5.673E 00	8.403E-03
6.761E 01	4.451E 00	1.222E 00	1.138E 03	-2.015E 03	-1.066E 03	-9.487E 02	4.665E 03	1.433E 01	2.122E-02	3.935E 00	5.828E-03
6.838E 01	2.800E 00	2.084E 00	1.216E 03	-2.064E 03	-1.084E 03	-9.601E 02	4.760E 03	9.013E 00	1.335E-02	6.709E 00	9.937E-03
6.910E 01	2.416E 00	2.890E 00	1.283E 03	-2.115E 03	-1.098E 03	-1.017E 03	4.848E 03	7.776E 00	1.152E-02	9.303E 00	1.378E-02
6.971E 01	2.090E 00	2.243E 00	1.335E 03	-2.156E 03	-1.110E 03	-1.047E 03	4.922E 03	6.728E 00	9.964E-03	7.220E 00	1.069E-02
7.066E 01	1.353E 00	1.235E 00	1.391E 03	-2.201E 03	-1.127E 03	-1.074E 03	5.036E 03	4.357E 00	6.452E-03	3.975E 00	5.888E-03
7.109E 01	1.020E 00	1.257E 00	1.408E 03	-2.216E 03	-1.135E 03	-1.081E 03	5.088E 03	3.283E 00	4.863E-03	4.046E 00	5.993E-03
7.262E 01	8.470E-01	1.335E 00	1.461E 03	-2.269E 03	-1.159E 03	-1.110E 03	5.273E 03	2.726E 00	4.038E-03	4.297E 00	6.365E-03
7.277E 01	8.300E-01	1.287E 00	1.465E 03	-2.275E 03	-1.161E 03	-1.114E 03	5.290E 03	2.672E 00	3.957E-03	4.144E 00	6.138E-03
7.352E 01	1.182E 00	1.050E 00	1.503E 03	-2.305E 03	-1.171E 03	-1.134E 03	5.374E 03	3.803E 00	5.633E-03	3.380E 00	5.006E-03
7.352E 01	1.183E 00	1.049E 00	1.505E 03	-2.305E 03	-1.171E 03	-1.134E 03	5.375E 03	3.809E 00	5.642E-03	3.376E 00	5.000E-03
7.485E 01	1.805E 00	0.000	1.536E 03	-2.362E 03	-1.185E 03	-1.177E 03	5.426E 03	5.810E 00	8.605E-03	0.000	0.000
7.770E 01	1.390E 00	0.000	1.600E 03	-2.385E 03	-1.208E 03	-1.177E 03	5.525E 03	4.474E 00	6.627E-03	0.000	0.000
8.160E 01	1.165E 00	0.000	1.655E 03	-2.405E 03	-1.228E 03	-1.177E 03	5.630E 03	3.750E 00	5.554E-03	0.000	0.000
8.441E 01	1.370E 00	0.000	1.683E 03	-2.422E 03	-1.245E 03	-1.177E 03	5.684E 03	4.410E 00	6.532E-03	0.000	0.000
8.727E 01	1.995E 00	0.000	1.724E 03	-2.452E 03	-1.275E 03	-1.177E 03	5.707E 03	6.422E 00	9.511E-03	0.000	0.000
8.727E 01	1.996E 00	0.000	1.724E 03	-2.452E 03	-1.275E 03	-1.177E 03	5.707E 03	6.426E 00	9.518E-03	0.000	0.000

READING = 0097 BLOCK = 52 TIME = 156.414 MACH 5.2 PT = 209.750 TT = 2180.0

X	DDRAG	CURAG	CF	HC
4.040E 01	6.745E 01	6.745E 01	2.457E-03	2.838E-02
4.041E 01	9.405E-02	6.754E 01	2.466E-03	2.947E-02
4.129E 01	8.254E 00	7.579E 01	2.590E-03	3.138E-02
4.136E 01	6.074E-01	7.640E 01	2.598E-03	3.156E-02
4.150E 01	1.319E 00	7.772E 01	2.619E-03	3.186E-02
4.246E 01	8.861E 00	8.658E 01	2.699E-03	3.276E-02
4.408E 01	1.453E 01	1.011E 02	2.740E-03	3.224E-02
4.431E 01	2.026E 00	1.031E 02	2.747E-03	3.228E-02
4.479E 01	4.239E 00	1.074E 02	2.757E-03	3.225E-02
4.480E 01	5.374E-02	1.074E 02	2.757E-03	3.225E-02
4.552E 01	6.264E 00	1.137E 02	2.734E-03	3.128E-02
4.626E 01	6.370E 00	1.201E 02	2.671E-03	2.912E-02
4.731E 01	8.709E 00	1.288E 02	2.575E-03	2.584E-02
4.732E 01	6.389E-02	1.288E 02	2.574E-03	2.582E-02
4.811E 01	6.200E 00	1.350E 02	2.488E-03	2.307E-02
4.876E 01	5.435E 00	1.405E 02	3.501E-03	2.387E-02
4.877E 01	7.969E-02	1.406E 02	2.773E-03	3.030E-02
4.930E 01	3.607E 00	1.442E 02	2.738E-03	2.959E-02
5.071E 01	7.902E 00	1.521E 02	2.922E-03	3.388E-02
5.281E 01	8.516E 00	1.606E 02	3.271E-03	2.702E-02
5.331E 01	1.711E 00	1.623E 02	3.375E-03	2.610E-02
5.405E 01	2.556E 00	1.648E 02	3.514E-03	2.468E-02
5.406E 01	3.476E-02	1.649E 02	3.405E-03	2.589E-02
5.482E 01	2.603E 00	1.675E 02	3.339E-03	2.619E-02
5.576E 01	3.053E 00	1.705E 02	3.461E-03	2.401E-02
5.623E 01	8.856E-01	1.714E 02	3.542E-03	2.103E-02
5.624E 01	2.270E-02	1.714E 02	3.546E-03	2.097E-02
5.630E 01	1.318E-01	1.716E 02	3.484E-03	2.220E-02
5.644E 01	3.512E-01	1.719E 02	3.583E-03	2.114E-02
5.652E 01	2.016E-01	1.721E 02	3.881E-03	1.807E-02
5.680E 01	6.846E-01	1.728E 02	3.877E-03	1.799E-02
5.702E 01	5.635E-01	1.734E 02	3.837E-03	1.873E-02
5.775E 01	1.993E 00	1.754E 02	3.747E-03	2.025E-02
5.877E 01	2.831E 00	1.782E 02	3.778E-03	1.935E-02
6.078E 01	5.922E 00	1.841E 02	3.674E-03	2.150E-02
6.220E 01	5.349E 00	1.895E 02	3.564E-03	2.281E-02
6.727E 01	1.651E 00	2.018E 02	3.603E-03	1.941E-02
6.466E 01	1.162E 01	2.134E 02	3.590E-03	2.238E-02
6.504E 01	1.972E 00	2.154E 02	3.571E-03	2.170E-02
6.508E 01	2.124E-01	2.156E 02	3.570E-03	2.168E-02
6.528E 01	1.065E 00	2.167E 02	3.563E-03	2.137E-02
6.694E 01	7.914E 00	2.246E 02	3.381E-03	1.091E-02
6.761E 01	2.430E 00	2.270E 02	3.334E-03	8.861E-03
6.838E 01	2.518E 00	2.296E 02	3.307E-03	7.952E-03
6.910E 01	2.290E 00	2.318E 02	3.311E-03	8.418E-03
6.971E 01	1.867E 00	2.337E 02	3.283E-03	7.276E-03
7.066E 01	2.381E 00	2.361E 02	3.213E-03	4.966E-03
7.109E 01	8.911E-01	2.370E 02	3.193E-03	4.504E-03
7.262E 01	2.990E 00	2.400E 02	3.179E-03	4.347E-03
7.277E 01	2.732E-01	2.402E 02	3.174E-03	4.248E-03
7.352E 01	1.348E 00	2.416E 02	3.176E-03	4.414E-03
7.352E 01	2.623E-03	2.416E 02	3.176E-03	4.415E-03
7.485E 01	9.746E-01	2.426E 02	3.233E-03	6.311E-03
7.770E 01	1.951E 00	2.445E 02	3.182E-03	5.170E-03
8.160E 01	1.822E 00	2.463E 02	3.139E-03	4.495E-03
8.441E 01	9.380E-01	2.473E 02	3.146E-03	5.056E-03

READING = 0097 BLOCK = 52 TIME = 156.414 MACH 5.2 PI = 209.750 TT = 2180.0

X	DDRAG	CDRAG	CF	MC
8.727E 01	4.557E-01	2.477E 02	3.184E-03	6.651E-03
8.727E 01	0.000	2.477E 02	3.184E-03	6.654E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1324.	(LBF)
MEASURED THRUST	1358.	(LBF)
CALCULATED SPECIFIC IMPULSE	2970.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3045.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.9048	
MEASURED THRUST COEFFICIENT	0.9277	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3989.	(LBF)
NET THRUST	1363.	(LBF)
SPECIFIC IMPULSE	3057.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.9312	

MOMENTUM AND FORCES

INLET FRICTION DRAG	67.4	(LBF)
INLET MOMENTUM CHANGE	-479.7	(LBF)
COMBUSTOR FRICTION DRAG	122.0	(LBF)
COMBUSTOR STRUT DRAG	81.52	(LBF)
COMBUSTOR MOMENTUM CHANGE	1149.	(LBF)
NOZZLE FRICTION DRAG	45.92	(LBF)
NOZZLE STRUT DRAG	40.20	(LBF)
NOZZLE MOMENTUM CHANGE	655.	(LBF)
NOZZLE PRESSURE INTEGRAL	741.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-732.	(LBF)
TOTAL STRUT DRAG	121.72	(LBF)
CAVITY FORCE	-1270.	(LBF)
CALCULATED LOAD CELL FORCE	-678.	(LBF)
MEASURED LOAD CELL FORCE	-644.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-123.7, -132.4, 0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2989	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.183	(IN)
NOZZLE SHROUD TRAILING EDGE	73.523	(IN)
NOZZLE PLUG TRAILING EDGE	87.275	(IN)
STRUT LEADING EDGE	56.439	(IN)
STRUT TRAILING EDGE	65.039	(IN)
COMBUSTOR EXIT	62.199	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8643	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2820	
DELTA PT2	0.0702	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4724	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2869	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9113	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9201	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9245	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8897	
ENTHALPY AT PO - SUPERSONIC	-22.41	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-6.02	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0264
EQUIVALENCE RATIO	0.898
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.3018
COMBUSTOR EFFECTIVENESS	0.9199
INJECTOR DISCHARGE COEFFICIENTS	0.8009, 0.7112, 0.6644,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9170
NOZZLE COEFFICIENT - CT	0.8440
PROCESS EFFICIENCY	0.8276
KINETIC ENERGY EFFICIENCY	0.8137

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.284	
1C	44.300	
2A	48.759	D
2C	46.250	
3A	54.049	E
3B	56.234	E
4	44.764	

Reading 97

t = 160.91 sec.

2/27/75

READING = 0097 BLOCK = 57 TIME = 160.914 MACH 5.2 PT = 210.750 TT = 2177.9 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	210.750	2178	429.7(559)	1.3204	28.837	2227											
0.000	0.298	366	-41.3(88)	1.3981	28.836	939	5.170	4855	1.821	0.07380	16.337	0.8643	2531	5.568	154.9		
SPIKE TIP NS		2	0 6														
0.600	10.737	2178	429.7(559)	1.3204	28.836	2227											
0.600	9.706	2125	414.7(544)	1.3223	28.836	2201	0.393	866	2.027	0.07380	16.337	0.8643	2568	0.993	158.4		
WIND TUNNEL		3	0 0														
0.000	210.750	2178	429.7(559)	1.3204	28.837	2227											
0.000	0.310	370	-40.3(89)	1.3982	28.836	944	5.134	4849	1.821	0.07591	16.805	0.8643	2602	5.721	154.8		
SPIKE TIP NS		4	0 0														
0.600	10.737	2178	429.7(559)	1.3204	28.836	2227											
0.600	9.640	2121	413.7(543)	1.3224	28.836	2199	0.407	895	2.027	0.07591	16.805	0.8643	2602	1.056	154.8		
INLET THROAT		5	0 4														
40.400	98.537	2123	414.1(543)	1.3223	28.836	2200											
40.400	10.227	1189	161.4(291)	1.3678	28.836	1674	2.124	3556	1.867	0.57091	16.805	0.1117	2150	32.451	127.9		
INLET UPNRSK		6	0 3														
40.400	98.537	2123	414.1(543)	1.3223	28.836	2200											
40.400	9.100	1152	152.0(281)	1.3701	28.836	1650	2.195	3622	1.867	0.53385	16.805	0.1229	2178	30.046	129.6		
INLET DNNRSK		7	0 4														
40.400	60.277	2123	414.1(543)	1.3223	28.836	2200											
40.400	49.912	2027	387.1(516)	1.3257	28.836	2153	0.540	1162	1.900	0.53385	16.805	0.1229	2178	9.640	129.6		
COMBUSTOR	0	8	1 4														
40.410	98.424	2123	414.1(543)	1.3223	28.836	2200											
40.410	10.755	1205	165.7(295)	1.3667	28.836	1685	2.092	3526	1.867	0.58717	16.805	0.1117	2149	32.172	127.9		
COMBUSTOR	0	9	2 4														
41.294	82.731	2111	410.8(540)	1.3227	28.836	2194											
41.294	12.386	1303	190.9(320)	1.3606	28.836	1748	1.897	3317	1.877	0.58842	16.805	0.1115	2086	30.334	124.2		
COMBUSTOR	0	10	3 4														
41.359	81.817	2110	410.6(540)	1.3228	28.836	2194											
41.359	12.541	1311	192.9(322)	1.3602	28.836	1753	1.883	3300	1.878	0.58934	16.805	0.1113	2081	30.228	123.9		
COMBUSTOR	0	11	4 4														
41.500	79.614	2109	410.0(539)	1.3228	28.836	2193											
41.500	12.842	1327	197.2(327)	1.3592	28.836	1763	1.851	3263	1.879	0.58934	16.805	0.1113	2071	29.889	123.2		
COMBUSTOR	0	12	5 5														
42.460	71.042	2095	406.4(536)	1.3233	28.836	2187											
42.460	13.980	1389	213.4(343)	1.3554	28.836	1802	1.725	3107	1.885	0.58352	16.805	0.1124	2025	28.173	120.5		
COMBUSTOR	0	13	6 4														
44.079	64.973	2075	400.6(530)	1.3240	28.836	2176											
44.079	14.194	1413	219.6(349)	1.3540	28.836	1816	1.657	3009	1.889	0.56418	16.805	0.1163	1994	26.380	118.7		
COMBUSTOR	0	14	7 3														
44.310	64.337	2072	399.8(529)	1.3241	28.836	2175											
44.310	14.274	1416	220.6(350)	1.3538	28.836	1818	1.647	2994	1.889	0.56313	16.805	0.1165	1990	26.204	118.4		
COMBUSTOR	0	15	8 3														
44.794	63.478	2067	398.4(528)	1.3243	28.836	2173											
44.794	14.321	1419	221.3(351)	1.3536	28.836	1820	1.636	2977	1.889	0.56065	16.805	0.1170	1984	25.938	118.1		
COMBUSTOR	0	16	9 3														
44.800	63.462	2067	398.4(528)	1.3243	28.836	2173											
44.800	14.325	1419	221.4(351)	1.3536	28.836	1820	1.636	2976	1.889	0.56066	16.805	0.1170	1984	25.934	118.1		
COMBUSTOR	0	17	10 4														
45.519	64.112	2061	396.7(526)	1.3245	28.836	2170											
45.519	13.553	1390	213.8(343)	1.3553	28.836	1803	1.678	3025	1.888	0.55015	16.805	0.1193	1994	25.860	118.6		
COMBUSTOR	0	18	11 3														
46.260	66.517	2055	394.9(524)	1.3247	28.836	2166											
46.260	11.961	1328	197.5(327)	1.3591	28.836	1764	1.782	3143	1.885	0.52815	16.805	0.1242	2022	25.798	120.3		

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	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
47.310	70.134	2046	392.5(522)	1.3251	28.836	2162											
47.310	9.880	1239	174.4(304)	1.3646	28.836	1707	1.935	3304	1.880	0.49152	16.805	0.1335	2063	25.234	122.6		
COMBUSTOR	0	20	13 3														
47.319	70.168	2046	392.5(522)	1.3251	28.836	2162											
47.319	9.866	1238	174.2(304)	1.3647	28.836	1707	1.936	3305	1.880	0.49130	16.805	0.1335	2064	25.232	122.8		
COMBUSTOR	0	21	14 3														
48.110	73.257	2039	390.6(520)	1.3253	28.836	2159											
48.110	8.353	1166	155.7(285)	1.3692	28.836	1659	2.066	3428	1.876	0.45807	16.805	0.1432	2097	24.403	124.8		
COMBUSTOR	0	22	15 13														
48.759	52.914	2033	405.7(573)	1.3290	25.988	2274											
48.759	10.711	1351	201.4(369)	1.3604	25.988	1875	1.705	3197	2.066	0.42636	16.948	0.1552	2110	21.184	124.5	0.30	0.05
COMBUSTOR	0	23	16 2														
48.769	52.879	2034	405.6(573)	1.3290	25.989	2274											
48.769	10.694	1351	201.2(369)	1.3604	25.989	1875	1.706	3198	2.067	0.42580	16.948	0.1554	2110	21.164	124.5	0.30	0.05
COMBUSTOR	0	24	17 3														
49.299	51.276	2058	404.4(580)	1.3278	26.016	2285											
49.299	9.750	1346	191.3(367)	1.3605	26.016	1871	1.746	3265	2.072	0.39823	16.948	0.1662	2135	20.207	126.0	0.30	0.07
COMBUSTOR	0	25	18 5														
50.709	41.300	2296	400.8(651)	1.3165	26.265	2392											
50.709	9.994	1615	192.6(443)	1.3435	26.265	2027	1.592	3227	2.115	0.33940	16.948	0.1950	2199	17.023	129.6	0.30	0.25
COMBUSTOR	0	26	19 5														
52.809	30.756	2839	391.8(823)	1.2914	26.610	2617											
52.809	13.650	2354	234.7(667)	1.3080	26.611	2398	1.169	2804	2.199	0.28001	17.060	0.2379	2318	12.202	135.9	0.32	0.60
COMBUSTOR	0	27	20 4														
53.309	29.570	2994	390.1(871)	1.2839	26.786	2671											
53.309	16.450	2624	268.0(751)	1.2966	26.787	2513	0.983	2471	2.211	0.26857	17.060	0.2480	2355	10.315	138.1	0.32	0.71
COMBUSTOR	0	28	21 4														
54.049	28.552	2981	392.8(899)	1.2856	25.762	2720											
54.049	16.646	2640	276.0(784)	1.2973	25.763	2571	0.941	2418	2.284	0.25423	17.119	0.2629	2408	9.554	140.6	0.44	0.55
COMBUSTOR	0	29	22 2														
54.059	28.542	2983	392.8(900)	1.2855	25.764	2720											
54.059	16.649	2642	276.0(785)	1.2972	25.765	2572	0.940	2418	2.284	0.25404	17.119	0.2631	2408	9.545	140.7	0.44	0.55
COMBUSTOR	0	30	23 4														
54.819	27.778	3137	389.8(949)	1.2778	25.939	2772											
54.819	16.850	2809	276.0(838)	1.2894	25.941	2635	0.906	2386	2.295	0.24023	17.119	0.2782	2470	8.907	144.3	0.44	0.63
COMBUSTOR	0	31	24 4														
55.760	27.346	3239	385.6(982)	1.2725	26.063	2804											
55.760	18.561	2978	293.9(893)	1.2820	26.066	2698	0.794	2143	2.302	0.22532	17.119	0.2966	2550	7.504	149.0	0.44	0.69
COMBUSTOR	0	32	25 4														
56.234	25.566	3603	387.8(1141)	1.2531	25.520	2966											
56.234	19.423	3407	312.8(1070)	1.2613	25.526	2893	0.669	1937	2.396	0.18244	17.178	0.3676	2863	5.493	166.7	0.56	0.74
COMBUSTOR	0	33	26 2														
56.244	25.567	3602	387.8(1140)	1.2532	25.519	2966											
56.244	19.441	3407	313.0(1070)	1.2614	25.525	2893	0.668	1934	2.396	0.18231	17.178	0.3679	[illegible]864	5.479	166.7	0.56	0.74
COMBUSTOR	0	34	27 4														
56.299	25.183	3818	387.6(1214)	1.2393	25.765	3022											
56.299	18.295	3587	296.4(1131)	1.2499	25.779	2941	0.726	2136	2.406	0.18173	17.178	0.3691	2870	6.033	167.1	0.56	0.84
COMBUSTOR	0	35	28 3														
56.439	25.176	3828	387.0(1217)	1.2386	25.779	3024											
56.439	18.423	3602	297.6(1136)	1.2490	25.792	2945	0.718	2115	2.406	0.18052	17.178	0.3715	2882	5.933	167.8	0.56	0.84
COMBUSTOR	0	36	29 21														
56.519	25.170	4144	386.6(1326)	1.2152	26.155	3094											
56.519	19.941	3978	314.8(1265)	1.2237	26.179	3041	0.623	1896	2.413	0.18251	17.178	0.3675	2889	5.375	168.2	0.56	1.00
COMBUSTOR	0	37	30 21														
56.799	25.436	4142	385.5(1325)	1.2154	26.156	3093											
56.799	20.450	3986	318.2(1268)	1.2234	26.178	3043	0.603	1836	2.412	0.18188	17.178	0.3688	2912	5.189	169.5	6.56	1.00

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              P      T      H            GAMMA  MOLWT SONV  MACH  VEL   S     W/A      W      A/AC    HOPTM   Q     IVAC  PHI  ETAC
COMBUSTOR      0   38   31  21
57.025    25.535 4140  384.7(1325) 1.2156 26.156 3093
57.025    19.950 3964  308.7(1260) 1.2246 26.181 3036 0.642 1949 2.412 0.18157 17.178 0.3694   2928  5.500 170.5 0.56 1.00
COMBUSTOR      0   39   32 200
57.749    25.644 4135  382.1(1323) 1.2160 26.158 3091
57.749    18.350 3895  280.0(1235) 1.2282 26.190 3014 0.750 2259 2.411 0.17872 17.178 0.3753   2970  6.275 172.9 0.56 1.00
COMBUSTOR      0   40   33  21
58.769    25.969 4127  378.5(1320) 1.2166 26.159 3089
58.769    20.475 3957  305.6(1258) 1.2252 26.183 3034 0.630 1911 2.409 0.17758 17.178 0.3777   3001  5.273 174.7 0.56 1.00
COMBUSTOR      0   41   34 200
60.779    26.527 4113  371.9(1314) 1.2177 26.163 3085
60.779    19.237 3883  274.4(1230) 1.2294 26.192 3010 0.734 2209 2.406 0.18376 17.178 0.3650   2978  6.307 173.3 0.56 1.00
COMBUSTOR      0   42   35 200
62.199    27.320 4103  367.2(1311) 1.2186 26.165 3082
62.199    15.450 3696  198.6(1163) 1.2369 26.209 2947 0.986 2905 2.402 0.18874 17.178 0.3553   2957  8.519 172.1 0.56 1.00
COMBUSTOR  REGEN   43   36   6
62.199    27.320 4247  433.2(1364) 1.2093 26.134 3126
62.199    10.632 3579  153.0(1121) 1.2435 26.215 2905 1.289 3744 2.418 0.18874 17.178 0.3553   2967 10.983 172.7 0.56 1.00
NOZZLE  AE         44   37   4
87.275    27.320 4103  367.2(1208) 1.2186 26.165 3082
87.275     0.565 1792 -469.1( 513) 1.3155 26.236 2114 3.061 6469 2.402 0.03462 17.178 1.9371   3734  3.481 217.4 0.56 1.00
NOZZLE  PO         45   38   4
87.275    27.320 4103  367.2(1208) 1.2186 26.165 3082
87.275     0.310 1549 -544.8( 438) 1.3283 26.236 1975 3.421 6755 2.402 0.02299 17.178 2.9178   3839  2.413 223.5 0.56 1.00
NOZZLE  AE REGEN   46   39   4
87.275    27.320 4247  433.2(1364) 1.2093 26.134 3126
87.275     0.589 1902 -434.2( 548) 1.3105 26.236 2173 3.031 6588 2.418 0.03462 17.178 1.9371   3810  3.545 221.8 0.56 1.00
NOZZLE  PO REGEN   47   40   4
87.275    27.320 4247  433.2(1364) 1.2093 26.134 3126
87.275     0.310 1630 -519.7( 463) 1.3237 26.236 2022 3.414 6905 2.418 0.02232 17.178 3.0046   3926  2.395 228.5 0.56 1.00
FICTIVE COMBUSTR   69   62   0
62.199    98.537 4124  367.2(1318) 1.2275 26.189 3100
62.199     0.310 1116 -673.6( 309) 1.3552 26.236 1693 4.263 7217 2.305 0.03408 17.178 1.9680   4010  3.822 233.4 0.56 1.00
FICTIVE NOZZLE     70   63   0
87.275    18.938 4013  330.5(1278) 1.2210 26.173 3051
87.275     0.660 1972 -411.6( 591) 1.3074 26.236 2210 2.757 6094 2.421 0.03462 17.178 1.9371   3581  3.279 208.5 0.56 1.00
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XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	7.150E-01	0.000	-2.627E-01	0.000	0.000	0.000	2.470E-02	2.303E 00	3.393E-03	0.000	0.000
1.836E 01	7.150E-01	0.000	-2.377E 01	0.000	0.000	0.000	1.634E 02	2.303E 00	3.393E-03	0.000	0.000
3.070E 01	1.250E 00	0.000	-1.034E 02	0.000	0.000	0.000	5.053E 02	4.027E 00	5.931E-03	0.000	0.000
3.508E 01	2.142E 00	0.000	-2.133E 02	0.000	0.000	0.000	6.804E 02	6.900E 00	1.016E-02	0.000	0.000
3.518E 01	2.165E 00	3.054E 00	-2.473E 02	0.000	0.000	0.000	6.847E 02	6.975E 00	1.027E-02	9.840E 00	1.449E-02
3.518E 01	2.167E 00	3.045E 00	-2.474E 02	0.000	0.000	0.000	6.850E 02	6.980E 00	1.028E-02	9.811E 00	1.445E-02
3.555E 01	2.255E 00	2.497E 00	-2.513E 02	0.000	0.000	0.000	7.218E 02	7.264E 00	1.070E-02	8.043E 00	1.185E-02
3.585E 01	2.208E 00	2.050E 00	-2.571E 02	-8.575E 01	-8.575E 01	0.000	7.521E 02	7.113E 00	1.048E-02	6.604E 00	9.727E-03
3.606E 01	2.175E 00	2.684E 00	-2.610E 02	-8.679E 01	-8.679E 01	0.000	7.738E 02	7.007E 00	1.032E-02	8.648E 00	1.274E-02
3.648E 01	2.482E 00	3.947E 00	-2.673E 02	-8.893E 01	-8.893E 01	0.000	8.174E 02	7.997E 00	1.178E-02	1.271E 01	1.873E-02
3.701E 01	2.467E 00	5.539E 00	-2.751E 02	-1.183E 02	-9.178E 01	-2.652E 01	8.734E 02	7.949E 00	1.171E-02	1.784E 01	2.628E-02
3.731E 01	3.142E 00	6.437E 00	-2.804E 02	-1.283E 02	-9.346E 01	-3.489E 01	9.055E 02	1.012E 01	1.491E-02	2.074E 01	3.055E-02
3.803E 01	4.770E 00	8.832E 00	-3.070E 02	-1.525E 02	-9.780E 01	-5.468E 01	9.843E 02	1.537E 01	2.263E-02	2.845E 01	4.191E-02
3.833E 01	6.300E 00	9.825E 00	-3.191E 02	-1.629E 02	-1.001E 02	-6.280E 01	1.018E 03	2.030E 01	2.989E-02	3.165E 01	4.662E-02
3.875E 01	8.456E 00	1.032E 01	-3.397E 02	-1.790E 02	-1.048E 02	-7.422E 01	1.065E 03	2.724E 01	4.013E-02	3.324E 01	4.896E-02
3.880E 01	8.707E 00	1.037E 01	-3.419E 02	-1.810E 02	-1.055E 02	-7.554E 01	1.071E 03	2.805E 01	4.131E-02	3.342E 01	4.923E-02
3.901E 01	9.787E 00	1.065E 01	-3.504E 02	-1.899E 02	-1.087E 02	-8.124E 01	1.095E 03	3.153E 01	4.644E-02	3.431E 01	5.053E-02
3.931E 01	9.704E 00	1.104E 01	-3.601E 02	-2.034E 02	-1.141E 02	-8.928E 01	1.129E 03	3.126E 01	4.604E-02	3.556E 01	5.237E-02
3.950E 01	9.650E 00	7.766E 00	-3.653E 02	-2.126E 02	-1.182E 02	-9.438E 01	1.151E 03	3.109E 01	4.579E-02	2.502E 01	3.685E-02
3.980E 01	9.966E 00	2.650E 00	-3.779E 02	-2.278E 02	-1.256E 02	-1.022E 02	1.186E 03	3.210E 01	4.729E-02	8.537E 00	1.257E-02
4.000E 01	1.018E 01	2.800E 00	-3.891E 02	-2.388E 02	-1.313E 02	-1.074E 02	1.210E 03	3.279E 01	4.829E-02	9.022E 00	1.329E-02
4.040E 01	1.200E 01	3.100E 00	-4.113E 02	-2.614E 02	-1.439E 02	-1.175E 02	1.257E 03	3.867E 01	5.696E-02	9.986E 00	1.471E-02
4.041E 01	1.205E 01	3.107E 00	-4.118E 02	-2.620E 02	-1.442E 02	-1.178E 02	1.258E 03	3.882E 01	5.717E-02	1.001E 01	1.474E-02
4.129E 01	1.608E 01	3.769E 00	-4.666E 02	-3.165E 02	-1.759E 02	-1.406E 02	1.362E 03	5.181E 01	7.632E-02	1.214E 01	1.788E-02
4.136E 01	1.638E 01	3.817E 00	-4.708E 02	-3.207E 02	-1.784E 02	-1.423E 02	1.370E 03	5.277E 01	7.773E-02	1.230E 01	1.811E-02
4.150E 01	1.702E 01	4.126E 00	-4.802E 02	-3.301E 02	-1.841E 02	-1.460E 02	1.387E 03	5.485E 01	8.078E-02	1.324E 01	1.958E-02
4.246E 01	1.035E 01	6.227E 00	-5.167E 02	-3.927E 02	-2.238E 02	-1.689E 02	1.502E 03	3.334E 01	4.911E-02	2.006E 01	2.954E-02
4.408E 01	1.349E 01	9.769E 00	-5.332E 02	-4.898E 02	-2.807E 02	-2.091E 02	1.698E 03	4.345E 01	6.401E-02	3.147E 01	4.635E-02
4.431E 01	1.394E 01	1.118E 01	-5.356E 02	-5.022E 02	-2.870E 02	-2.152E 02	1.726E 03	4.490E 01	6.613E-02	3.602E 01	5.305E-02
4.479E 01	1.488E 01	1.414E 01	-5.371E 02	-5.255E 02	-2.990E 02	-2.265E 02	1.785E 03	4.792E 01	7.058E-02	4.554E 01	6.707E-02
4.480E 01	1.489E 01	1.417E 01	-5.372E 02	-5.257E 02	-2.991E 02	-2.266E 02	1.786E 03	4.796E 01	7.064E-02	4.566E 01	6.725E-02
4.552E 01	1.309E 01	1.856E 01	-5.211E 02	-5.553E 02	-3.157E 02	-2.396E 02	1.874E 03	4.216E 01	6.210E-02	5.980E 01	8.808E-02
4.626E 01	1.123E 01	1.639E 01	-4.862E 02	-5.838E 02	-3.332E 02	-2.506E 02	1.965E 03	3.619E 01	5.330E-02	5.279E 01	7.775E-02
4.731E 01	8.606E 00	1.330E 01	-4.365E 02	-6.251E 02	-3.589E 02	-2.662E 02	2.095E 03	2.772E 01	4.084E-02	4.285E 01	6.311E-02
4.732E 01	8.576E 00	1.327E 01	-4.361E 02	-6.254E 02	-3.591E 02	-2.663E 02	2.096E 03	2.763E 01	4.069E-02	4.276E 01	6.299E-02
4.811E 01	5.887E 00	1.187E 01	-3.966E 02	-6.571E 02	-3.791E 02	-2.780E 02	2.195E 03	1.897E 01	2.794E-02	3.823E 01	5.631E-02
4.876E 01	1.071E 01	1.071E 01	-3.605E 02	-6.836E 02	-3.960E 02	-2.876E 02	2.276E 03	3.451E 01	5.082E-02	3.451E 01	5.082E-02
4.877E 01	1.069E 01	1.069E 01	-3.599E 02	-6.840E 02	-3.962E 02	-2.878E 02	2.277E 03	3.445E 01	5.074E-02	3.445E 01	5.074E-02
4.930E 01	9.750E 00	9.750E 00	-3.317E 02	-7.059E 02	-4.103E 02	-2.956E 02	2.344E 03	3.141E 01	4.626E-02	3.141E 01	4.626E-02
5.071E 01	9.994E 00	9.994E 00	-2.587E 02	-7.667E 02	-4.489E 02	-3.178E 02	2.521E 03	3.219E 01	4.742E-02	3.219E 01	4.742E-02
5.281E 01	1.365E 01	1.365E 01	-1.285E 02	-8.743E 02	-5.098E 02	-3.645E 02	2.768E 03	4.397E 01	6.477E-02	4.397E 01	6.477E-02
5.331E 01	1.645E 01	1.645E 01	-8.942E 01	-9.038E 02	-5.249E 02	-3.788E 02	2.851E 03	5.299E 01	7.805E-02	5.299E 01	7.805E-02
5.405E 01	1.665E 01	1.665E 01	-2.623E 01	-9.503E 02	-5.478E 02	-4.026E 02	2.946E 03	5.362E 01	7.898E-02	5.362E 01	7.898E-02
5.406E 01	1.665E 01	1.665E 01	-2.539E 01	-9.510E 02	-5.481E 02	-4.029E 02	2.947E 03	5.363E 01	7.900E-02	5.363E 01	7.900E-02
5.482E 01	1.685E 01	1.685E 01	3.954E 01	-1.003E 03	-5.720E 02	-4.310E 02	3.045E 03	5.428E 01	7.995E-02	5.428E 01	7.995E-02
5.576E 01	1.856E 01	1.856E 01	1.231E 02	-1.074E 03	-6.025E 02	-4.710E 02	3.166E 03	5.979E 01	8.807E-02	5.979E 01	8.807E-02
5.623E 01	1.942E 01	1.942E 01	4.367E 02	-1.109E 03	-6.160E 02	-4.934E 02	3.208E 03	6.257E 01	9.216E-02	6.257E 01	9.216E-02
5.624E 01	1.944E 01	1.944E 01	4.380E 02	-1.110E 03	-6.163E 02	-4.939E 02	3.209E 03	6.263E 01	9.225E-02	6.263E 01	9.225E-02
5.630E 01	1.705E 01	1.954E 01	4.436E 02	-1.114E 03	-6.176E 02	-4.966E 02	3.216E 03	5.493E 01	8.090E-02	6.295E 01	9.272E-02
5.644E 01	1.705E 01	1.980E 01	4.564E 02	-1.124E 03	-6.211E 02	-5.033E 02	3.234E 03	5.493E 01	8.090E-02	6.377E 01	9.393E-02
5.652E 01	1.994E 01	1.994E 01	4.643E 02	-1.130E 03	-6.230E 02	-5.071E 02	3.244E 03	6.424E 01	9.462E-02	6.424E 01	9.462E-02
5.680E 01	2.045E 01	2.045E 01	4.907E 02	-1.149E 03	-6.299E 02	-5.194E 02	3.280E 03	6.588E 01	9.703E-02	6.588E 01	9.703E-02
5.702E 01	1.995E 01	1.995E 01	5.104E 02	-1.164E 03	-6.356E 02	-5.285E 02	3.309E 03	6.427E 01	9.466E-02	6.427E 01	9.466E-02
5.775E 01	1.835E 01	1.835E 01	5.623E 02	-1.209E 03	-6.538E 02	-5.551E 02	3.402E 03	5.911E 01	8.707E-02	5.911E 01	8.707E-02
5.877E 01	2.047E 01	2.047E 01	6.073E 02	-1.269E 03	-6.799E 02	-5.886E 02	3.532E 03	6.596E 01	9.715E-02	6.596E 01	9.715E-02
6.078E 01	1.924E 01	1.924E 01	6.119E 02	-1.384E 03	-7.337E 02	-6.501E 02	3.790E 03	6.197E 01	9.128E-02	6.197E 01	9.128E-02

READING = 0097 BLOCK = 57 TIME = 160.914 MACH 5.2 PT = 210.750 TT = 2177.9

XABS	P-IB	P-OB	PDA	QDX	W-IB	Q-OB	CAWALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.220E 01	1.545E 01	1.545E 01	6.119E 02	-1.464E 03	-7.736E 02	-6.901E 02	3.972E 03	4.977E 01	7.331E-02	4.977E 01	7.331E-02
6.466E 01	1.245E 01	1.245E 01	6.119E 02	-1.602E 03	-8.475E 02	-7.549E 02	4.289E 03	4.011E 01	5.907E-02	4.011E 01	5.907E-02
6.504E 01	1.090E 01	1.199E 01	6.119E 02	-1.624E 03	-8.593E 02	-7.645E 02	4.337E 03	3.511E 01	5.172E-02	3.863E 01	5.690E-02
6.508E 01	1.090E 01	1.194E 01	6.119E 02	-1.626E 03	-8.605E 02	-7.655E 02	4.342E 03	3.511E 01	5.172E-02	3.848E 01	5.667E-02
6.528E 01	1.034E 01	1.170E 01	6.119E 02	-1.637E 03	-8.668E 02	-7.703E 02	4.368E 03	3.331E 01	4.906E-02	3.769E 01	5.552E-02
6.694E 01	5.687E 00	1.775E 00	6.923E 02	-1.718E 03	-9.101E 02	-8.083E 02	4.563E 03	1.832E 01	2.699E-02	5.718E 00	8.422E-03
6.761E 01	4.167E 00	1.230E 00	7.578E 02	-1.748E 03	-9.237E 02	-8.243E 02	4.665E 03	1.342E 01	1.977E-02	3.962E 00	5.836E-03
6.838E 01	2.420E 00	1.990E 00	8.297E 02	-1.784E 03	-9.372E 02	-8.466E 02	4.760E 03	7.796E 00	1.148E-02	6.410E 00	9.441E-03
6.910E 01	2.193E 00	2.700E 00	8.905E 02	-1.822E 03	-9.487E 02	-8.735E 02	4.848E 03	7.063E 00	1.040E-02	8.698E 00	1.281E-02
6.971E 01	2.000E 00	2.129E 00	9.396E 02	-1.853E 03	-9.582E 02	-8.950E 02	4.922E 03	6.443E 00	9.490E-03	6.859E 00	1.010E-02
7.066E 01	1.339E 00	1.240E 00	9.936E 02	-1.885E 03	-9.728E 02	-9.123E 02	5.036E 03	4.314E 00	6.354E-03	3.995E 00	5.884E-03
7.109E 01	1.040E 00	1.225E 00	1.011E 03	-1.895E 03	-9.793E 02	-9.160E 02	5.088E 03	3.350E 00	4.935E-03	3.945E 00	5.811E-03
7.262E 01	8.579E-01	1.170E 00	1.062E 03	-1.936E 03	-9.995E 02	-9.366E 02	5.273E 03	2.764E 00	4.070E-03	3.769E 00	5.552E-03
7.277E 01	8.400E-01	1.151E 00	1.066E 03	-1.941E 03	-1.001E 03	-9.393E 02	5.290E 03	2.706E 00	3.986E-03	3.707E 00	5.461E-03
7.352E 01	1.136E 00	1.055E 00	1.102E 03	-1.965E 03	-1.009E 03	-9.557E 02	5.374E 03	3.659E 00	5.389E-03	3.399E 00	5.006E-03
7.352E 01	1.137E 00	1.054E 00	1.104E 03	-1.965E 03	-1.009E 03	-9.558E 02	5.375E 03	3.664E 00	5.396E-03	3.397E 00	5.004E-03
7.485E 01	1.660E 00	0.000	1.133E 03	-2.012E 03	-1.022E 03	-9.902E 02	5.426E 03	5.348E 00	7.877E-03	0.000	0.000
7.770E 01	1.250E 00	0.000	1.192E 03	-2.032E 03	-1.042E 03	-9.902E 02	5.525E 03	4.027E 00	5.931E-03	0.000	0.000
8.160E 01	1.160E 00	0.000	1.243E 03	-2.050E 03	-1.060E 03	-9.902E 02	5.630E 03	3.737E 00	5.504E-03	0.000	0.000
8.441E 01	1.255E 00	0.000	1.270E 03	-2.066E 03	-1.075E 03	-9.902E 02	5.684E 03	4.043E 00	5.955E-03	0.000	0.000
8.727E 01	1.995E 00	0.000	1.309E 03	-2.094E 03	-1.104E 03	-9.902E 02	5.707E 03	6.427E 00	9.466E-03	0.000	0.000
8.727E 01	1.997E 00	0.000	1.309E 03	-2.094E 03	-1.104E 03	-9.902E 02	5.707E 03	6.432E 00	9.474E-03	0.000	0.000

READING = 0097 BLOCK = 57 TIME = 160.914 MACH 5.2 PT = 210.750 TT = 2177.9

X	DDRAG	CDRAG	CF	HC
4.040E 01	6.740E 01	6.740E 01	2.464E-03	2.666E-02
4.041E 01	9.432E-02	6.750E 01	2.473E-03	2.903E-02
4.129E 01	8.279E 00	7.578E 01	2.596E-03	3.153E-02
4.136E 01	6.091E-01	7.638E 01	2.604E-03	3.172E-02
4.150E 01	1.322E 00	7.771E 01	2.625E-03	3.203E-02
4.246E 01	8.883E 00	8.659E 01	2.704E-03	3.292E-02
4.408E 01	1.457E 01	1.012E 02	2.747E-03	3.241E-02
4.431E 01	2.031E 00	1.032E 02	2.755E-03	3.246E-02
4.479E 01	4.249E 00	1.074E 02	2.765E-03	3.243E-02
4.480E 01	5.388E-02	1.075E 02	2.765E-03	3.244E-02
4.552E 01	6.281E 00	1.138E 02	2.742E-03	3.145E-02
4.626E 01	6.391E 00	1.202E 02	2.679E-03	2.926E-02
4.731E 01	8.743E 00	1.289E 02	2.584E-03	2.601E-02
4.732E 01	6.416E-02	1.290E 02	2.583E-03	2.599E-02
4.811E 01	6.229E 00	1.352E 02	2.503E-03	2.328E-02
4.876E 01	5.301E 00	1.405E 02	3.226E-03	2.323E-02
4.877E 01	7.885E-02	1.406E 02	2.719E-03	2.735E-02
4.930E 01	3.710E 00	1.443E 02	2.676E-03	2.559E-02
5.071E 01	8.792E 00	1.531E 02	2.644E-03	2.502E-02
5.281E 01	1.083E 01	1.639E 02	2.923E-03	2.554E-02
5.331E 01	2.218E 00	1.661E 02	3.260E-03	2.307E-02
5.405E 01	3.140E 00	1.693E 02	3.427E-03	2.206E-02
5.406E 01	4.134E-02	1.693E 02	3.343E-03	2.206E-02
5.482E 01	2.993E 00	1.723E 02	3.320E-03	2.265E-02
5.576E 01	3.338E 00	1.756E 02	3.405E-03	2.155E-02
5.623E 01	9.526E-01	1.766E 02	3.475E-03	1.912E-02
5.624E 01	2.456E-02	1.766E 02	3.541E-03	1.854E-02
5.630E 01	1.426E-01	1.768E 02	3.490E-03	1.920E-02
5.644E 01	3.749E-01	1.771E 02	3.561E-03	1.855E-02
5.652E 01	2.102E-01	1.773E 02	3.701E-03	1.725E-02
5.680E 01	6.979E-01	1.780E 02	3.705E-03	1.711E-02
5.702E 01	5.681E-01	1.786E 02	3.668E-03	1.763E-02
5.775E 01	1.977E 00	1.806E 02	3.582E-03	1.802E-02
5.877E 01	2.726E 00	1.833E 02	3.642E-03	1.762E-02
6.078E 01	5.375E 00	1.887E 02	3.558E-03	1.899E-02
6.220E 01	4.712E 00	1.934E 02	3.419E-03	2.011E-02
8.727E 01	1.426E 00	2.042E 02	3.445E-03	1.717E-02
6.466E 01	1.033E 01	2.146E 02	3.428E-03	1.960E-02
6.504E 01	1.763E 00	2.163E 02	3.403E-03	1.902E-02
6.508E 01	1.895E-01	2.165E 02	3.403E-03	1.900E-02
6.528E 01	9.497E-01	2.175E 02	3.393E-03	1.874E-02
6.694E 01	7.132E 00	2.246E 02	3.172E-03	1.010E-02
6.761E 01	2.214E 00	2.268E 02	3.116E-03	8.075E-03
6.838E 01	2.256E 00	2.291E 02	3.077E-03	6.984E-03
6.910E 01	2.034E 00	2.311E 02	3.086E-03	7.503E-03
6.971E 01	1.682E 00	2.328E 02	3.060E-03	6.646E-03
7.066E 01	2.193E 00	2.350E 02	2.988E-03	4.701E-03
7.109E 01	8.341E-01	2.358E 02	2.965E-03	4.259E-03
7.262E 01	2.742E 00	2.385E 02	2.938E-03	3.904E-03
7.277E 01	2.461E-01	2.388E 02	2.934E-03	3.849E-03
7.352E 01	1.238E 00	2.400E 02	2.945E-03	4.132E-03
7.352E 01	2.434E-03	2.400E 02	2.945E-03	4.134E-03
7.485E 01	8.848E-01	2.409E 02	3.002E-03	5.620E-03
7.770E 01	1.730E 00	2.426E 02	2.944E-03	4.529E-03
8.160E 01	1.652E 00	2.443E 02	2.914E-03	4.252E-03
8.441E 01	8.554E-01	2.451E 02	2.913E-03	4.490E-03

READING = 0097 BLOCK = 57 TIME = 160.914 MACH 5.2 PI = 210.750 TT = 2177.9

X	DDRAG	CDRAG	CF	HC
8.727E 01	4.165E-01	2.456E 02	2.972E-03	6.294E-03
8.727E 01	0.000	2.456E 02	2.972E-03	6.297E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	953.	(LBF)
MEASURED THRUST	875.	(LBF)
CALCULATED SPECIFIC IMPULSE	3423.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3144.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6501	
MEASURED THRUST COEFFICIENT	0.5971	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	3653.	(LBF)
NET THRUST	1025.	(LBF)
SPECIFIC IMPULSE	3683.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6993	

MOMENTUM AND FORCES

INLET FRICTION DRAG	67.4	(LBF)
INLET MOMENTUM CHANGE	-478.7	(LBF)
COMBUSTOR FRICTION DRAG	126.0	(LBF)
COMBUSTOR STRUT DRAG	64.52	(LBF)
COMBUSTOR MOMENTUM CHANGE	807.	(LBF)
NOZZLE FRICTION DRAG	41.34	(LBF)
NOZZLE STRUT DRAG	31.81	(LBF)
NOZZLE MOMENTUM CHANGE	624.	(LBF)
NOZZLE PRESSURE INTEGRAL	697.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-733.	(LBF)
TOTAL STRUT DRAG	96.33	(LBF)
CAVITY FORCE	-1294.	(LBF)
CALCULATED LOAD CELL FORCE	-1074.	(LBF)
MEASURED LOAD CELL FORCE	-1152.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -123.1, -133.5,	0.0.	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2989	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.183	(IN)
NOZZLE SHROUD TRAILING EDGE	73.523	(IN)
NOZZLE PLUG TRAILING EDGE	87.275	(IN)
STRUT LEADING EDGE	56.439	(IN)
STRUT TRAILING EDGE	65.039	(IN)
COMBUSTOR EXIT	62.199	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8643	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2811	
DELTA PT2	0.0705	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4676	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2860	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9089	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9191	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9278	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8933	
ENTHALPY AT PO - SUPERSONIC	-21.90	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-5.69	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0165
EQUIVALENCE RATIO	0.560
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.2773
COMBUSTOR EFFECTIVENESS	0.9075
INJECTOR DISCHARGE COEFFICIENTS	0.7994, 0.7534, 0.7535,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9590
NOZZLE COEFFICIENT - CT	0.8928
PROCESS EFFICIENCY	0.9443
KINETIC ENERGY EFFICIENCY	0.9108

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.284	
1C	44.300	
2A	48.759	D
2C	46.250	
3A	54.049	E
3B	56.234	E
4	44.784	

Reading 97

t = 182.51 sec.

2/27/75


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READING = 0097  BLOCK =  81  TIME = 182.514  MACH  5.2  PT = 210.250  TT = 2163.1
                                      RAMJET PERFORMANCE

                                      S U M M A R Y   R E P O R T

              P       T       H             GAMMA  MOLWT  SONV  MACH   VEL    S      W/A      W       A/AC    MOMTM    Q     IVAC  PHI  ETAC
WIND TUNNEL           1     0   4
 0.000   210.250 2163   425.5( 555) 1.3209 28.837 2220
 0.000     0.298  363   -42.0(  87) 1.3981 28.836  935 5.170 4837 1.820 0.07403 16.388 0.8643   2529  5.564 154.3
SPIKE TIP NS          2     0   6
 0.600    10.787 2163   425.5( 555) 1.3209 28.836 2220
 0.600     9.763 2111   410.8( 540) 1.3228 28.836 2194 0.391  858 2.024 0.07403 16.388 0.8643   2598  0.987 158.5
WIND TUNNEL           3     0   0
 0.000   210.250 2163   425.5( 555) 1.3209 28.837 2220
 0.000     0.313  368   -40.7(  89) 1.3982 28.836  942 5.127 4830 1.820 0.07657 16.951 0.8643   2614  5.748 154.2
SPIKE TIP NS          4     0   0
 0.600    10.787 2163   425.5( 555) 1.3209 28.836 2220
 0.600     9.683 2107   409.6( 539) 1.3229 28.836 2192 0.407  893 2.024 0.07657 16.951 0.8643   2614  1.062 154.2
INLET THROAT          5     0   4
40.400   101.360 2094   406.0( 535) 1.3233 28.836 2186
40.400     9.928 1153   152.2( 282) 1.3700 28.836 1650 2.159 3563 1.861 0.57267 16.951 0.1117   2161 32.801 127.5
INLET UPNRSK          6     0   2
40.400   101.360 2094   406.0( 535) 1.3233 28.836 2186
40.400     8.926 1120   143.9( 273) 1.3721 28.836 1628 2.225 3621 1.861 0.53850 16.951 0.1229   2189 30.304 129.1
INLET DNNRSK          7     0   4
40.400    60.649 2094   406.0( 535) 1.3233 28.836 2186
40.400    50.340 2001   379.7( 509) 1.3267 28.836 2139 0.536 1147 1.896 0.53850 16.951 0.1229   2189  9.597 129.1
COMBUSTOR        0    8     1   4
40.410   101.264 2094   405.9( 535) 1.3233 28.836 2186
40.410    10.537 1172   157.1( 286) 1.3689 28.836 1663 2.122 3529 1.861 0.59227 16.951 0.1117   2161 32.482 127.5
COMBUSTOR        0    9     2   4
41.294    84.638 2084   403.1( 532) 1.3237 28.836 2181
41.294    12.169 1271   182.6( 312) 1.3626 28.836 1728 1.922 3322 1.872 0.59354 16.951 0.1115   2097 30.638 123.7
COMBUSTOR        0   10     3   4
41.359    83.665 2083   402.8( 532) 1.3237 28.836 2180
41.359    12.323 1278   184.6( 314) 1.3622 28.836 1733 1.907 3305 1.873 0.59447 16.951 0.1113   2093 30.532 123.5
COMBUSTOR        0   11     4   4
41.500    81.336 2081   402.3( 532) 1.3238 28.836 2179
41.500    12.625 1295   188.9( 318) 1.3611 28.836 1743 1.874 3268 1.874 0.59446 16.951 0.1113   2082 30.191 122.8
COMBUSTOR        0   12     5   5
42.460    72.296 2070   399.1( 528) 1.3242 28.836 2174
42.460    13.780 1359   205.6( 335) 1.3572 28.836 1783
                                                        1.745 3111 1.881 0.58859 16.951 0.1124   2036 28.459 120.1
COMBUSTOR        0   13     6   4
44.079    65.975 2052   394.0( 523) 1.3249 28.836 2165
44.079    14.024 1386   212.5( 342) 1.3556 28.836 1800 1.674 3013 1.885 0.56908 16.951 0.1163   2005 26.648 118.3
COMBUSTOR        0   14     7   3
44.310    65.321 2049   393.3( 523) 1.3249 28.836 2164
44.310    14.105 1390   213.6( 343) 1.3554 28.836 1802 1.664 2999 1.885 0.56803 16.951 0.1165   2001 26.472 118.0
COMBUSTOR        0   15     8   3
44.794    64.449 2045   392.1( 521) 1.3251 28.836 2161
44.794    14.152 1392   214.3( 344) 1.3552 28.836 1804 1.653 2982 1.885 0.56552 16.951 0.1178   1995 26.208 117.7
COMBUSTOR        0   16     9   3
44.800    64.433 2045   392.1( 521) 1.3251 28.836 2161
44.800    14.156 1393   214.4( 344) 1.3552 28.836 1804 1.653 2982 1.885 0.56553 16.951 0.1178   1995 26.204 117.7
COMBUSTOR        0   17    10   4
45.519    65.119 2039   390.5( 520) 1.3253 28.836 2159
45.519    13.400 1365   207.1( 336) 1.3569 28.836 1787 1.695 3029 1.884 0.55493 16.951 0.1193   2005 26.123 118.3
COMBUSTOR        0   18    11   3
46.260    67.612 2034   388.9( 518) 1.3255 28.836 2156
46.260    11.837 1304   191.2( 321) 1.3606 28.836 1749 1.798 3145 1.880 0.53274 16.951 0.1242   2034 26.041 120.0
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	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
47.310	71.424	2026	386.7(516)	1.3258	28.836	2152											
47.310	9.779	1216	168.5(298)	1.3660	28.836	1693	1.952	3305	1.876	0.49579	16.951	0.1335	2075	25.461	122.4		
COMBUSTOR	0	20	13 3														
47.319	71.459	2026	386.7(516)	1.3258	28.836	2152											
47.319	9.766	1216	168.4(298)	1.3661	28.836	1692	1.954	3306	1.876	0.49557	16.951	0.1335	2076	25.458	122.5		
COMBUSTOR	0	21	14 3														
48.110	74.227	2020	385.1(514)	1.3260	28.836	2149											
48.110	8.313	1149	151.2(281)	1.3703	28.836	1647	2.077	3421	1.872	0.46205	16.951	0.1432	2107	24.566	124.3		
COMBUSTOR	0	22	15 4														
48.769	75.670	2015	383.7(513)	1.3262	28.836	2146											
48.769	7.079	1091	136.5(266)	1.3739	28.836	1608	2.188	3517	1.870	0.42586	16.951	0.1554	2135	23.275	125.9		
COMBUSTOR	0	23	16 3														
49.299	76.312	2011	382.6(512)	1.3263	28.836	2144											
49.299	6.258	1050	126.2(256)	1.3764	28.836	1579	2.269	3582	1.869	0.39828	16.951	0.1662	2153	22.170	127.0		
COMBUSTOR	0	24	17 4														
50.709	78.802	2001	379.8(509)	1.3267	28.836	2139											
50.709	4.659	954	102.2(232)	1.3821	28.836	1508	2.471	3727	1.865	0.33944	16.951	0.1950	2196	19.659	129.6		
COMBUSTOR	0	25	18 202														
52.809	49.638	2136	372.9(551)	1.3203	28.687	2211											
52.809	10.600	1450	183.0(362)	1.3505	28.687	1842	1.673	3082	1.930	0.28004	17.062	0.2379	2280	13.412	133.6	0.03	1.00
COMBUSTOR	0	26	19 200														
53.309	43.202	2132	371.6(550)	1.3205	28.687	2209											
53.309	13.600	1599	223.1(402)	1.3423	28.687	1929	1.413	2726	1.939	0.26859	17.062	0.2480	2309	11.378	135.4	0.03	1.00
COMBUSTOR	0	27	20 4														
54.049	28.292	2886	384.1(822)	1.2884	27.182	2608											
54.049	11.958	2369	219.1(659)	1.3061	27.183	2379	1.208	2873	2.173	0.25512	17.179	0.2629	2339	11.391	136.2	0.27	0.75
COMBUSTOR	0	28	21 2														
54.059	28.283	2887	384.1(822)	1.2884	27.183	2608											
54.059	11.936	2369	218.8(659)	1.3061	27.184	2379	1.209	2876	2.173	0.25492	17.179	0.2631	2340	11.393	136.2	0.27	0.75
COMBUSTOR	0	29	22 3														
54.819	27.946	2911	382.1(829)	1.2871	27.217	2616											
54.819	10.250	2313	191.5(641)	1.3077	27.218	2350	1.314	3088	2.175	0.24107	17.179	0.2782	2379	11.569	138.5	0.27	0.78
COMBUSTOR	0	30	23 203														
55.760	25.824	3180	379.6(912)	1.2738	27.534	2705											
55.760	14.884	2819	260.5(796)	1.2867	27.536	2559	0.954	2442	2.194	0.22611	17.179	0.2966	2435	8.581	141.7	0.27	1.00
COMBUSTOR	0	31	24 4														
56.234	23.836	3399	387.2(1053)	1.2642	25.761	2880											
56.234	17.218	3174	304.7(974)	1.2730	25.765	2792	0.727	2031	2.356	0.18369	17.296	0.3676	2713	5.797	156.8	0.50	0.71
COMBUSTOR	0	32	25 2														
56.244	23.842	3394	387.1(1051)	1.2648	25.756	2878											
56.244	17.267	3170	305.4(973)	1.2732	25.759	2791	0.724	2022	2.356	0.18356	17.296	0.3679	2714	5.768	156.9	0.50	0.70
COMBUSTOR	0	33	26 4														
56.299	23.579	3519	387.0(1093)	1.2574	25.895	2915											
56.299	16.419	3264	292.9(1004)	1.2677	25.902	2818	0.770	2170	2.363	0.18298	17.296	0.3691	2719	6.172	157.2	0.50	0.76
COMBUSTOR	0	34	27 3														
56.439	23.626	3502	386.7(1087)	1.2584	25.878	2910											
56.439	16.764	3261	297.6(1003)	1.2681	25.883	2818	0.749	2111	2.362	0.18176	17.296	0.3715	2730	5.963	157.8	0.50	0.76
COMBUSTOR	0	35	28 21														
56.519	23.401	3980	386.5(1248)	1.2267	26.437	3030											
56.519	18.621	3816	319.6(1189)	1.2349	26.453	2976	0.615	1830	2.378	0.18376	17.296	0.3675	2736	5.226	158.2	0.50	1.00
COMBUSTOR	0	36	29 21														
56.799	23.887	3979	385.8(1247)	1.2269	26.438	3030											
56.799	20.000	3851	333.6(1201)	1.2333	26.450	2988	0.541	1617	2.376	0.18312	17.296	0.3688	2758	4.602	159.5	0.50	1.00
COMBUSTOR	0	37	30 21														
57.025	23.897	3978	385.3(1247)	1.2270	26.438	3030											
57.025	19.453	3829	324.9(1194)	1.2344	26.452	2981	0.583	1738	2.376	0.18281	17.296	0.3694	2775	4.938	160.4	0.50	1.00

READING = 0097 BLOCK = 81 TIME = 182.514 MACH 5.2 PT = 210.250 TT = 2163.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
57.749	23.796	3974	383.6(1245)	1.2272	26.438	3028											
57.749	17.700	3761	297.6(1169)	1.2377	26.458	2958	0.701	2074	2.376	0.17994	17.296	0.3753	2816	5.800	162.8	0.50	1.00
COMBUSTOR	0	39	32 21														
58.769	24.399	3968	381.1(1243)	1.2278	26.439	3027											
58.769	20.250	3834	326.5(1195)	1.2344	26.452	2982	0.554	1654	2.373	0.17880	17.296	0.3777	2848	4.595	164.7	0.50	1.00
COMBUSTOR	0	40	33 21														
60.779	24.716	3956	376.1(1239)	1.2286	26.441	3023											
60.779	18.825	3760	297.2(1169)	1.2381	26.459	2958	0.672	1987	2.371	0.18502	17.296	0.3650	2828	5.713	163.5	0.50	1.00
COMBUSTOR	0	41	34 200														
62.199	24.986	3948	372.4(1236)	1.2291	26.443	3021											
62.199	15.262	3595	232.9(1110)	1.2460	26.470	2901	0.911	2643	2.369	0.19004	17.296	0.3553	2810	7.804	162.5	0.50	1.00
SONIC THROAT		42	35 200														
62.199	27.804	3949	372.4(1236)	1.2298	26.444	3022											
62.199	15.262	3520	204.3(1084)	1.2498	26.474	2875	1.009	2901	2.361	0.19004	17.296	0.3553	2948	8.566	170.5	0.50	1.00
COMBUSTOR	REGEN	43	36 4														
62.199	24.986	4056	418.2(1275)	1.2226	26.427	3054											
62.199	14.833	3681	266.6(1141)	1.2412	26.464	2930	0.940	2754	2.381	0.19004	17.296	0.3553	2831	8.133	163.6	0.50	1.00
NOZZLE	AE	44	37 4														
87.275	24.986	3948	372.4(1229)	1.2291	26.443	3021											
87.275	0.563	1727	-405.8(486)	1.3204	26.490	2069	3.016	6240	2.369	0.03486	17.296	1.9371	3634	3.381	210.1	0.50	1.00
NOZZLE	PO	45	38 4														
87.275	24.986	3948	372.4(1229)	1.2291	26.443	3021											
87.275	0.313	1494	-476.6(416)	1.3331	26.490	1934	3.371	6518	2.369	0.02339	17.296	2.8877	3735	2.369	216.0	0.50	1.00
NOZZLE	AE REGEN	46	39 4														
87.275	24.986	4056	418.2(1275)	1.2226	26.427	3054											
87.275	0.580	1805	-381.5(511)	1.3167	26.490	2112	2.995	6326	2.381	0.03486	17.296	1.9371	3689	3.427	213.3	0.50	1.00
NOZZLE	PO REGEN	47	40 4														
87.275	24.986	4056	418.2(1275)	1.2226	26.427	3054											
87.275	0.313	1552	-459.2(433)	1.3298	26.490	1968	3.367	6626	2.381	0.02289	17.296	2.9504	3798	2.357	219.6	0.50	1.00
FICTIVE COMBUSTR		69	62 0														
62.199	101.360	3963	372.4(1241)	1.2368	26.459	3035											
62.199	0.313	1040	-608.8(283)	1.3615	26.490	1631	4.297	7007	2.264	0.03610	17.296	1.8704	3917	3.932	226.5	0.50	1.00
FICTIVE NOZZLE		70	63 0														
87.275	14.280	3887	350.1(1214)	1.2286	26.441	2996											
87.275	0.738	2068	-298.4(594)	1.3053	26.490	2251	2.531	5697	2.405	0.03486	17.296	1.9371	3429	3.086	198.2	0.50	1.00

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OR	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	7.100E-01	0.000	-2.639E-01	0.000	0.000	0.000	2.470E-02	2.270E 00	3.377E-03	0.000	0.000
1.836E 01	7.100E-01	0.000	-2.361E 01	0.000	0.000	0.000	1.634E 02	2.270E 00	3.377E-03	0.000	0.000
3.070E 01	1.265E 00	0.000	-1.037E 02	0.000	0.000	0.000	5.053E 02	4.045E 00	6.017E-03	0.000	0.000
3.508E 01	2.147E 00	0.000	-2.142E 02	0.000	0.000	0.000	6.804E 02	6.865E 00	1.021E-02	0.000	0.000
3.518E 01	2.171E 00	3.048E 00	-2.482E 02	0.000	0.000	0.000	6.847E 02	6.942E 00	1.033E-02	9.745E 00	1.450E-02
3.518E 01	2.173E 00	3.038E 00	-2.482E 02	0.000	0.000	0.000	6.850E 02	6.947E 00	1.033E-02	9.715E 00	1.445E-02
3.555E 01	2.265E 00	2.452E 00	-2.523E 02	0.000	0.000	0.000	7.218E 02	7.242E 00	1.077E-02	7.841E 00	1.166E-02
3.585E 01	2.201E 00	1.975E 00	-2.583E 02	-1.487E 02	-1.487E 02	0.000	7.521E 02	7.036E 00	1.047E-02	6.315E 00	9.394E-03
3.606E 01	2.155E 00	2.622E 00	-2.623E 02	-1.505E 02	-1.505E 02	0.000	7.738E 02	6.891E 00	1.025E-02	8.384E 00	1.247E-02
3.648E 01	2.477E 00	3.909E 00	-2.687E 02	-1.542E 02	-1.542E 02	0.000	8.174E 02	7.920E 00	1.178E-02	1.250E 01	1.859E-02
3.701E 01	2.467E 00	5.534E 00	-2.766E 02	-1.855E 02	-1.591E 02	-2.643E 01	8.734E 02	7.890E 00	1.174E-02	1.769E 01	2.632E-02
3.731E 01	3.142E 00	6.450E 00	-2.819E 02	-1.967E 02	-1.620E 02	-3.477E 01	9.055E 02	1.005E 01	1.495E-02	2.062E 01	3.068E-02
3.803E 01	4.770E 00	8.818E 00	-3.085E 02	-2.238E 02	-1.693E 02	-5.448E 01	9.843E 02	1.525E 01	2.269E-02	2.820E 01	4.194E-02
3.833E 01	6.308E 00	9.800E 00	-3.206E 02	-2.354E 02	-1.728E 02	-6.260E 01	1.018E 03	2.017E 01	3.000E-02	3.134E 01	4.661E-02
3.875E 01	8.475E 00	1.036E 01	-3.412E 02	-2.525E 02	-1.786E 02	-7.399E 01	1.065E 03	2.710E 01	4.031E-02	3.313E 01	4.927E-02
3.880E 01	8.726E 00	1.042E 01	-3.434E 02	-2.546E 02	-1.793E 02	-7.531E 01	1.071E 03	2.790E 01	4.150E-02	3.333E 01	4.958E-02
3.901E 01	9.812E 00	1.068E 01	-3.820E 02	-2.637E 02	-1.827E 02	-8.100E 01	1.095E 03	3.138E 01	4.667E-02	3.416E 01	5.081E-02
3.931E 01	9.698E 00	1.105E 01	-3.616E 02	-2.771E 02	-1.881E 02	-8.902E 01	1.129E 03	3.101E 01	4.613E-02	3.533E 01	5.256E-02
3.950E 01	9.625E 00	7.774E 00	-3.668E 02	-2.860E 02	-1.919E 02	-9.411E 01	1.151E 03	3.078E 01	4.578E-02	2.486E 01	3.697E-02
3.980E 01	9.941E 00	2.650E 00	-3.793E 02	-3.003E 02	-1.984E 02	-1.019E 02	1.186E 03	3.179E 01	4.728E-02	8.473E 00	1.260E-02
4.000E 01	1.015E 01	2.799E 00	-3.905E 02	-3.104E 02	-2.033E 02	-1.071E 02	1.210E 03	3.246E 01	4.829E-02	8.949E 00	1.331E-02
4.040E 01	1.202E 01	3.094E 00	-4.127E 02	-3.309E 02	-2.137E 02	-1.172E 02	1.257E 03	3.842E 01	5.715E-02	9.894E 00	1.472E-02
4.041E 01	1.206E 01	3.102E 00	-4.132E 02	-3.314E 02	-2.139E 02	-1.175E 02	1.258E 03	3.857E 01	5.737E-02	9.918E 00	1.475E-02
4.129E 01	1.618E 01	3.755E 00	-4.683E 02	-3.803E 02	-2.401E 02	-1.401E 02	1.362E 03	5.173E 01	7.695E-02	1.201E 01	1.786E-02
4.136E 01	1.648E 01	3.803E 00	-4.726E 02	-3.841E 02	-2.423E 02	-1.419E 02	1.370E 03	5.270E 01	7.838E-02	1.216E 01	1.809E-02
4.150E 01	1.714E 01	4.112E 00	-4.821E 02	-3.924E 02	-2.469E 02	-1.455E 02	1.387E 03	5.480E 01	8.151E-02	1.315E 01	1.956E-02
4.246E 01	1.035E 01	6.211E 00	-5.189E 02	-4.480E 02	-2.798E 02	-1.681E 02	1.502E 03	3.309E 01	4.923E-02	1.986E 01	2.954E-02
4.408E 01	1.339E 01	9.750E 00	-5.352E 02	-5.346E 02	-3.271E 02	-2.074E 02	1.698E 03	4.280E 01	6.366E-02	3.118E 01	4.637E-02
4.431E 01	1.382E 01	1.116E 01	-5.375E 02	-5.458E 02	-3.324E 02	-2.134E 02	1.726E 03	4.419E 01	6.573E-02	3.568E 01	5.307E-02
4.479E 01	1.473E 01	1.411E 01	-5.388E 02	-5.669E 02	-3.425E 02	-2.245E 02	1.785E 03	4.709E 01	7.004E-02	4.511E 01	6.710E-02
4.480E 01	1.474E 01	1.414E 01	-5.388E 02	-5.672E 02	-3.426E 02	-2.246E 02	1.786E 03	4.712E 01	7.010E-02	4.523E 01	6.727E-02
4.552E 01	1.299E 01	1.852E 01	-5.225E 02	-5.940E 02	-3.565E 02	-2.375E 02	1.874E 03	4.153E 01	6.177E-02	5.923E 01	8.811E-02
4.626E 01	1.118E 01	1.643E 01	-4.875E 02	-6.198E 02	-3.711E 02	-2.487E 02	1.965E 03	3.575E 01	5.318E-02	5.252E 01	7.812E-02
4.731E 01	8.625E 00	1.345E 01	-4.372E 02	-6.569E 02	-3.924E 02	-2.644E 02	2.095E 03	2.758E 01	4.102E-02	4.301E 01	6.397E-02
4.732E 01	8.595E 00	1.342E 01	-4.368E 02	-6.572E 02	-3.926E 02	-2.646E 02	2.096E 03	2.748E 01	4.088E-02	4.293E 01	6.385E-02
4.811E 01	5.925E 00	1.097E 01	-3.988E 02	-6.852E 02	-4.091E 02	-2.762E 02	2.195E 03	1.895E 01	2.818E-02	3.507E 01	5.217E-02
4.877E 01	8.921E 00	8.921E 00	-3.668E 02	-7.084E 02	-4.231E 02	-2.853E 02	2.277E 03	2.853E 01	4.243E-02	2.853E 01	4.243E-02
4.930E 01	7.275E 00	7.275E 00	-3.444E 02	-7.270E 02	-4.346E 02	-2.924E 02	2.344E 03	2.326E 01	3.460E-02	2.326E 01	3.460E-02
5.071E 01	6.581E 00	6.581E 00	-2.932E 02	-7.751E 02	-4.660E 02	-3.092E 02	2.521E 03	2.104E 01	3.130E-02	2.104E 01	3.130E-02
5.281E 01	1.060E 01	1.060E 01	-1.986E 02	-8.513E 02	-5.150E 02	-3.363E 02	2.788E 03	3.389E 01	5.042E-02	3.389E 01	5.042E-02
5.331E 01	1.360E 01	1.360E 01	-1.671E 02	-8.718E 02	-5.271E 02	-3.447E 02	2.851E 03	4.349E 01	6.468E-02	4.349E 01	6.468E-02
5.405E 01	1.196E 01	1.196E 01	-1.183E 02	-9.038E 02	-5.453E 02	-3.585E 02	2.946E 03	3.824E 01	5.688E-02	3.824E 01	5.688E-02
5.406E 01	1.194E 01	1.194E 01	-1.177E 02	-9.042E 02	-5.455E 02	-3.587E 02	2.947E 03	3.817E 01	5.677E-02	3.817E 01	5.677E-02
5.482E 01	1.025E 01	1.025E 01	-7.471E 01	-9.380E 02	-5.645E 02	-3.734E 02	3.045E 03	3.277E 01	4.875E-02	3.277E 01	4.875E-02
5.576E 01	1.488E 01	1.488E 01	-1.542E 01	-9.810E 02	-5.886E 02	-3.924E 02	3.166E 03	4.759E 01	7.079E-02	4.759E 01	7.079E-02
5.623E 01	1.722E 01	1.722E 01	2.638E 02	-1.002E 03	-5.994E 02	-4.022E 02	3.208E 03	5.505E 01	8.189E-02	5.505E 01	8.189E-02
5.624E 01	1.727E 01	1.727E 01	2.649E 02	-1.002E 03	-5.996E 02	-4.024E 02	3.209E 03	5.521E 01	8.213E-02	5.521E 01	8.213E-02
5.630E 01	1.530E 01	1.754E 01	2.699E 02	-1.004E 03	-6.007E 02	-4.035E 02	3.216E 03	4.892E 01	7.277E-02	5.608E 01	8.341E-02
5.644E 01	1.530E 01	1.823E 01	2.815E 02	-1.010E 03	-6.034E 02	-4.065E 02	3.234E 03	4.892E 01	7.277E-02	5.828E 01	8.669E-02
5.652E 01	1.862E 01	1.862E 01	2.889E 02	-1.013E 03	-6.050E 02	-4.082E 02	3.244E 03	5.954E 01	8.857E-02	5.954E 01	8.857E-02
5.680E 01	2.000E 01	2.000E 01	3.142E 02	-1.025E 03	-6.106E 02	-4.140E 02	3.280E 03	6.395E 01	9.512E-02	6.395E 01	9.512E-02
5.702E 01	1.945E 01	1.945E 01	3.333E 02	-1.034E 03	-6.151E 02	-4.188E 02	3.309E 03	6.220E 01	9.252E-02	6.220E 01	9.252E-02
5.776E 01	1.770E 01	1.770E 01	3.837E 02	-1.064E 03	-6.296E 02	-4.340E 02	3.402E 03	5.660E 01	8.419E-02	5.660E 01	8.419E-02
5.877E 01	2.025E 01	2.025E 01	4.277E 02	-1.106E 03	-6.505E 02	-4.557E 02	3.532E 03	6.475E 01	9.631E-02	6.475E 01	9.631E-02
6.078E 01	1.882E 01	1.882E 01	4.322E 02	-1.194E 03	-6.932E 02	-5.003E 02	3.790E 03	6.019E 01	8.954E-02	6.019E 01	8.954E-02
6.220E 01	1.526E 01	1.526E 01	4.322E 02	-1.256E 03	-7.255E 02	-5.310E 02	3.972E 03	4.880E 01	7.259E-02	4.880E 01	7.259E-02

READING = 0097 BLOCK = 81 TIME = 182.514 MACH 5.2 PT = 210.250 TT = 2163.1

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OH	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.466E 01	1.277E 01	1.277E 01	4.322E 02	-1.369E 03	-7.873E 02	-5.814E 02	4.289E 03	4.084E 01	6.075E-02	4.084E 01	6.075E-02
6.504E 01	1.105E 01	1.239E 01	4.322E 02	-1.386E 03	-7.974E 02	-5.890E 02	4.337E 03	3.533E 01	5.256E-02	3.962E 01	5.894E-02
6.508E 01	1.105E 01	1.235E 01	4.322E 02	-1.388E 03	-7.985E 02	-5.897E 02	4.342E 03	3.533E 01	5.256E-02	3.950E 01	5.875E-02
6.528E 01	1.044E 01	1.215E 01	4.322E 02	-1.397E 03	-8.038E 02	-5.936E 02	4.368E 03	3.338E 01	4.965E-02	3.885E 01	5.779E-02
6.694E 01	5.362E 00	1.800E 00	5.138E 02	-1.464E 03	-8.409E 02	-6.235E 02	4.583E 03	1.715E 01	2.551E-02	5.755E 00	8.561E-03
6.761E 01	4.021E 00	1.252E 00	5.771E 02	-1.488E 03	-8.525E 02	-6.353E 02	4.665E 03	1.286E 01	1.913E-02	4.005E 00	5.957E-03
6.838E 01	2.480E 00	1.897E 00	6.479E 02	-1.516E 03	-8.639E 02	-6.519E 02	4.760E 03	7.930E 00	1.180E-02	6.066E 00	9.023E-03
6.910E 01	2.134E 00	2.500E 00	7.071E 02	-1.546E 03	-8.735E 02	-6.724E 02	4.848E 03	6.822E 00	1.015E-02	7.994E 00	1.189E-02
6.971E 01	1.840E 00	2.037E 00	7.534E 02	-1.570E 03	-8.813E 02	-6.886E 02	4.922E 03	5.883E 00	8.751E-03	6.512E 00	9.687E-03
7.066E 01	1.320E 00	1.315E 00	8.056E 02	-1.593E 03	-8.929E 02	-6.996E 02	5.036E 03	4.221E 00	6.279E-03	4.205E 00	6.254E-03
7.109E 01	1.085E 00	1.276E 00	8.234E 02	-1.599E 03	-8.979E 02	-7.011E 02	5.088E 03	3.469E 00	5.161E-03	4.078E 00	6.067E-03
7.262E 01	8.846E-01	1.135E 00	8.753E 02	-1.628E 03	-9.137E 02	-7.141E 02	5.273E 03	2.829E 00	4.208E-03	3.629E 00	5.398E-03
7.277E 01	8.650E-01	1.124E 00	8.796E 02	-1.631E 03	-9.151E 02	-7.161E 02	5.290E 03	2.766E 00	4.114E-03	3.595E 00	5.347E-03
7.352E 01	1.139E 00	1.070E 00	9.156E 02	-1.650E 03	-9.213E 02	-7.282E 02	5.374E 03	3.642E 00	5.418E-03	3.421E 00	5.089E-03
7.352E 01	1.140E 00	1.070E 00	9.177E 02	-1.650E 03	-9.214E 02	-7.283E 02	5.375E 03	3.647E 00	5.424E-03	3.420E 00	5.088E-03
7.485E 01	1.625E 00	0.000	9.469E 02	-1.685E 03	-9.309E 02	-7.537E 02	5.426E 03	5.196E 00	7.729E-03	0.000	0.000
7.770E 01	1.150E 00	0.000	1.002E 03	-1.594E 03	-9.467E 02	-6.469E 02	5.525E 03	3.677E 00	5.470E-03	0.000	0.000
8.160E 01	1.165E 00	0.000	1.052E 03	-1.608E 03	-9.610E 02	-6.469E 02	5.630E 03	3.725E 00	5.541E-03	0.000	0.000
8.441E 01	1.310E 00	0.000	1.079E 03	-1.620E 03	-9.732E 02	-6.469E 02	5.684E 03	4.189E 00	6.231E-03	0.000	0.000
8.727E 01	1.820E 00	0.000	1.117E 03	-1.643E 03	-9.957E 02	-6.469E 02	5.707E 03	5.819E 00	8.656E-03	0.000	0.000
8.727E 01	1.821E 00	0.000	1.117E 03	-1.643E 03	-9.958E 02	-6.469E 02	5.707E 03	5.823E 00	8.661E-03	0.000	0.000

READING = 0097 BLOCK = 81 TIME = 182.514 MACH 5.2 PT = 210.250 TT = 2163.1 PAGE 6

X	DDRAG	CDRAG	CF	HC
4.040E 01	6.708E 01	6.708E 01	2.434E-03	2.827E-02
4.041E 01	9.412E-02	6.718E 01	2.443E-03	2.941E-02
4.129E 01	8.267E 00	7.545E 01	2.569E-03	3.136E-02
4.136E 01	6.089E-01	7.605E 01	2.578E-03	3.155E-02
4.150E 01	1.322E 00	7.738E 01	2.599E-03	3.186E-02
4.246E 01	8.891E 00	8.627E 01	2.681E-03	3.280E-02
4.408E 01	1.460E 01	1.009E 02	2.726E-03	3.234E-02
4.431E 01	2.036E 00	1.029E 02	2.734E-03	3.239E-02
4.479E 01	4.261E 00	1.072E 02	2.744E-03	3.236E-02
4.480E 01	5.403E-02	1.072E 02	2.744E-03	3.237E-02
4.552E 01	6.298E 00	1.135E 02	2.721E-03	3.139E-02
4.626E 01	6.405E 00	1.199E 02	2.658E-03	2.923E-02
4.731E 01	8.755E 00	1.287E 02	2.564E-03	2.596E-02
4.732E 01	6.423E-02	1.287E 02	2.563E-03	2.594E-02
4.811E 01	6.234E 00	1.350E 02	2.487E-03	2.328E-02
4.877E 01	4.839E 00	1.398E 02	2.420E-03	2.073E-02
4.930E 01	3.618E 00	1.434E 02	2.370E-03	1.891E-02
5.071E 01	8.579E 00	1.520E 02	2.251E-03	1.515E-02
5.281E 01	1.052E 01	1.625E 02	2.530E-03	2.352E-02
5.331E 01	2.074E 00	1.646E 02	2.721E-03	2.512E-02
5.405E 01	3.119E 00	1.677E 02	3.075E-03	2.133E-02
5.406E 01	4.577E-02	1.678E 02	3.208E-03	2.023E-02
5.482E 01	3.550E 00	1.713E 02	3.144E-03	1.886E-02
5.576E 01	3.902E 00	1.752E 02	3.260E-03	2.056E-02
5.623E 01	1.041E 00	1.763E 02	3.536E-03	1.759E-02
5.624E 01	2.595E-02	1.763E 02	3.496E-03	1.791E-02
5.630E 01	1.462E-01	1.764E 02	3.458E-03	1.827E-02
5.644E 01	3.757E-01	1.768E 02	3.511E-03	1.778E-02
5.652E 01	2.068E-01	1.770E 02	3.712E-03	1.604E-02
5.680E 01	6.547E-01	1.777E 02	3.757E-03	1.529E-02
5.702E 01	5.138E-01	1.782E 02	3.714E-03	1.587E-02
5.775E 01	1.822E 00	1.800E 02	3.615E-03	1.702E-02
5.877E 01	2.488E 00	1.825E 02	3.700E-03	1.564E-02
6.078E 01	4.850E 00	1.873E 02	3.598E-03	1.726E-02
6.220E 01	4.344E 00	1.917E 02	3.458E-03	1.858E-02
6.466E 01	9.279E 00	2.107E 02	3.462E-03	1.859E-02
6.504E 01	1.558E 00	2.123E 02	3.433E-03	1.816E-02
6.508E 01	1.687E-01	2.125E 02	3.432E-03	1.815E-02
6.528E 01	8.480E-01	2.133E 02	3.421E-03	1.794E-02
6.694E 01	6.517E 00	2.198E 02	3.173E-03	9.583E-03
6.761E 01	2.084E 00	2.219E 02	3.117E-03	7.776E-03
6.838E 01	2.148E 00	2.241E 02	3.081E-03	6.810E-03
6.910E 01	1.923E 00	2.260E 02	3.082E-03	7.073E-03
6.971E 01	1.568E 00	2.275E 02	3.054E-03	6.230E-03
7.066E 01	2.088E 00	2.296E 02	2.993E-03	4.698E-03
7.109E 01	8.218E-01	2.305E 02	2.972E-03	4.323E-03
7.262E 01	2.685E 00	2.331E 02	2.937E-03	3.833E-03
7.277E 01	2.380E-01	2.334E 02	2.934E-03	3.788E-03
7.352E 01	1.198E 00	2.346E 02	2.947E-03	4.093E-03
7.352E 01	2.368E-03	2.346E 02	2.947E-03	4.094E-03
7.485E 01	8.510E-01	2.354E 02	3.001E-03	5.434E-03
7.770E 01	1.623E 00	2.371E 02	2.932E-03	4.186E-03
8.160E 01	1.561E 00	2.386E 02	2.915E-03	4.198E-03
8.441E 01	8.390E-01	2.395E 02	2.920E-03	4.560E-03
8.727E 01	3.954E-01	2.398E 02	2.960E-03	5.777E-03
8.727E 01	0.000	2.398E 02	2.960E-03	5.780E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	787.	(LBF)
MEASURED THRUST	804.	(LBF)
CALCULATED SPECIFIC IMPULSE	3143.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3210.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5349	
MEASURED THRUST COEFFICIENT	0.5463	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3480.	(LBF)
NET THRUST	839.	(LBF)
SPECIFIC IMPULSE	3349.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5700	

MOMENTUM AND FORCES

INLET FRICTION DRAG	67.1	(LBF)
INLET MOMENTUM CHANGE	-479.8	(LBF)
COMBUSTOR FRICTION DRAG	124.6	(LBF)
COMBUSTOR STRUT DRAG	56.10	(LBF)
COMBUSTOR MOMENTUM CHANGE	648.	(LBF)
NOZZLE FRICTION DRAG	38.40	(LBF)
NOZZLE STRUT DRAG	27.66	(LBF)
NOZZLE MOMENTUM CHANGE	619.	(LBF)
NOZZLE PRESSURE INTEGRAL	685.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-736.	(LBF)
TOTAL STRUT DRAG	83.76	(LBF)
CAVITY FORCE	-1363.	(LBF)
CALCULATED LOAD CELL FORCE	-1312.	(LBF)
MEASURED LOAD CELL FORCE	-1295.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-135.0, 0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2989	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.183	(IN)
NOZZLE SHROUD TRAILING EDGE	73.523	(IN)
NOZZLE PLUG TRAILING EDGE	87.275	(IN)
STRUT LEADING EDGE	56.439	(IN)
STRUT TRAILING EDGE	65.039	(IN)
COMBUSTOR EXIT	62.199	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8643	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2836	
DELTA PT2	0.0701	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4821	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2885	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9145	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9212	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9228	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8871	
ENTHALPY AT P0 - SUPERSONIC	-24.24	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-7.61	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0147
EQUIVALENCE RATIO	0.500
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.2465
COMBUSTOR EFFECTIVENESS	0.8960
INJECTOR DISCHARGE COEFFICIENTS	0.7263, 0.6860,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9435
NOZZLE COEFFICIENT - CT	0.8763
PROCESS EFFICIENCY	0.8821
KINETIC ENERGY EFFICIENCY	0.8742

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.284	
1C	44.300	
2A	48.759	
2C	46.250	
3A	54.049	E
3B	56.234	E
4	44.784	

Reading 97

t = 201.41 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	210.250	2165	426.1(555)	1.3208	28.837	2221											
0.000	0.298	363	-41.9(88)	1.3981	28.836	936	5.170	4839	1.820	0.07397	16.374	0.8643	2529	5.563	154.4		
SPIKE TIP NS		2	0 6														
0.600	10.800	2165	426.1(555)	1.3209	28.836	2221											
0.600	9.778	2114	411.5(541)	1.3227	28.836	2195	0.390	857	2.025	0.07397	16.374	0.8643	2600	0.985	158.8		
WIND TUNNEL		3	0 0														
0.000	210.250	2165	426.1(555)	1.3208	28.837	2221											
0.000	0.313	369	-40.6(89)	1.3982	28.836	943	5.125	4833	1.820	0.07662	16.962	0.8643	2617	5.754	154.3		
SPIKE TIP NS		4	0 0														
0.600	10.800	2165	426.1(555)	1.3209	28.836	2221											
0.600	9.695	2109	410.2(539)	1.3228	28.836	2193	0.407	893	2.025	0.07662	16.962	0.8643	2617	1.064	154.3		
INLET THROAT		5	0 4														
40.400	100.037	2104	408.9(538)	1.3230	28.836	2191											
40.400	10.062	1167	156.0(285)	1.3691	28.836	1660	2.143	3558	1.863	0.57220	16.962	0.1117	2163	32.770	127.5		
INLET UPNRSK		6	0 2														
40.400	100.037	2104	408.9(538)	1.3230	28.836	2191											
40.400	9.066	1135	147.7(277)	1.3712	28.836	1638	2.207	3615	1.863	0.53884	16.962	0.1229	2191	30.273	129.2		
INLET DNNRSK		7	0 4														
40.400	60.670	2104	408.9(538)	1.3230	28.836	2191											
40.400	50.282	2010	382.3(512)	1.3264	28.836	2144	0.538	1154	1.898	0.53884	16.962	0.1229	2191	9.665	129.2		
COMBUSTOR	0	8	1 4														
40.410	99.954	2104	408.9(538)	1.3230	28.836	2191											
40.410	10.708	1187	161.1(290)	1.3679	28.836	1673											
							2.104	3521	1.863	0.59265	16.962	0.1117	2163	32.432	127.5		
COMBUSTOR	0	9	2 4														
41.294	83.801	2094	405.9(535)	1.3234	28.836	2186											
41.294	12.353	1286	186.5(316)	1.3617	28.836	1738	1.907	3313	1.874	0.59392	16.962	0.1115	2100	30.581	123.8		
COMBUSTOR	0	10	3 4														
41.359	82.856	2093	405.7(535)	1.3234	28.836	2185											
41.359	12.509	1294	188.5(318)	1.3612	28.836	1742	1.892	3297	1.875	0.59485	16.962	0.1113	2095	30.475	123.5		
COMBUSTOR	0	11	4 4														
41.500	80.585	2091	405.2(534)	1.3234	28.836	2184											
41.500	12.814	1310	192.8(322)	1.3602	28.836	1753	1.859	3260	1.876	0.59484	16.962	0.1113	2084	30.132	122.9		
COMBUSTOR	0	12	5 5														
42.460	71.765	2079	401.8(531)	1.3239	28.836	2179											
42.460	13.976	1374	209.4(339)	1.3563	28.836	1792	1.731	3102	1.883	0.58897	16.962	0.1124	2038	28.397	120.2		
COMBUSTOR	0	13	6 4														
44.079	65.595	2061	396.6(526)	1.3245	28.836	2169											
44.079	14.207	1399	216.1(345)	1.3548	28.836	1808	1.662	3005	1.886	0.56945	16.962	0.1163	2007	26.594	118.3		
COMBUSTOR	0	14	7 3														
44.310	64.961	2058	395.9(525)	1.3246	28.836	2168											
44.310	14.286	1403	217.1(346)	1.3546	28.836	1810	1.653	2991	1.887	0.56840	16.962	0.1165	2003	26.420	118.1		
COMBUSTOR	0	15	8 3														
44.794	64.128	2054	394.6(524)	1.3248	28.836	2166											
44.794	14.327	1405	217.7(347)	1.3544	28.836	1812	1.642	2975	1.887	0.56589	16.962	0.1178	1998	26.162	117.8		
COMBUSTOR	0	16	9 3														
44.800	64.113	2054	394.6(524)	1.3248	28.836	2166											
44.800	14.331	1406	217.8(347)	1.3544	28.836	1812	1.642	2974	1.887	0.56590	16.962	0.1178	1998	26.158	117.8		
COMBUSTOR	0	17	10 4														
45.519	64.840	2048	393.0(522)	1.3250	28.836	2163											
45.519	13.549	1377	210.2(340)	1.3561	28.836	1794	1.685	3024	1.885	0.55529	16.962	0.1193	2008	26.096	118.4		
COMBUSTOR	0	18	11 3														
46.260	67.345	2043	391.5(521)	1.3252	28.836	2160											
46.260	11.956	1315	194.1(323)	1.3599	28.836	1756	1.790	3143	1.882	0.53309	16.962	0.1242	2037	26.035	120.1		

READING = 0097 BLOCK = 102 TIME = 201.414 MACH 5.2 PT = 210.250 TT = 2165.3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
47.310	71.112	2035	389.3(518)	1.3255	28.836	2156											
47.310	9.873	1227	171.2(301)	1.3654	28.836	1699	1.944	3303	1.877	0.49612	16.962	0.1335	2079	25.468	122.6		
COMBUSTOR	0	20	13 3														
47.319	71.148	2035	389.2(518)	1.3255	28.836	2156											
47.319	9.860	1226	171.0(300)	1.3654	28.836	1699	1.945	3304	1.877	0.49589	16.962	0.1335	2079	25.465	122.6		
COMBUSTOR	0	21	14 2														
48.110	73.723	2029	387.6(517)	1.3257	28.836	2153											
48.110	8.406	1160	154.0(283)	1.3696	28.836	1655	2.066	3419	1.874	0.46235	16.962	0.1432	2111	24.563	124.4		
COMBUSTOR	0	22	15 4														
48.769	74.765	2024	386.2(515)	1.3259	28.836	2151											
48.769	7.182	1104	139.9(269)	1.3731	28.836	1617	2.171	3511	1.872	0.42614	16.962	0.1554	2137	23.249	126.0		
COMBUSTOR	0	23	16 3														
49.299	74.937	2020	385.0(514)	1.3260	28.836	2149											
49.299	6.374	1066	130.2(260)	1.3755	28.836	1590	2.246	3571	1.871	0.39854	16.962	0.1662	2154	22.119	127.0		
COMBUSTOR	0	24	17 6														
50.709	78.771	2009	382.0(511)	1.3264	28.836	2143											
50.709	4.682	960	103.6(233)	1.3818	28.836	1512	2.468	3732	1.866	0.33966	16.962	0.1950	2201	19.699	129.8		
COMBUSTOR	0	25	18 202														
52.809	42.691	2141	374.3(553)	1.3202	28.687	2213											
52.809	16.050	1681	245.3(424)	1.3383	28.687	1974	1.287	2540	1.941	0.28022	17.073	0.2379	2326	11.063	136.2	0.03	1.00
COMBUSTOR	0	26	19 200														
53.309	42.704	2136	372.9(551)	1.3203	28.687	2211											
53.309	16.033	1676	244.1(423)	1.3385	28.687	1972	1.288	2539	1.940	0.26877	17.073	0.2480	2366	10.604	138.6	0.03	1.00
COMBUSTOR	0	27	20 4														
54.049	28.522	3018	391.9(886)	1.2831	26.559	2693											
54.049	16.752	2679	278.6(775)	1.2947	26.560	2548	0.934	2381	2.233	0.25591	17.232	0.2629	2403	9.470	139.5	0.35	0.68
COMBUSTOR	0	28	21 2														
54.059	28.512	3020	391.9(887)	1.2830	26.561	2693											
54.059	16.762	2681	278.7(776)	1.2946	26.562	2549	0.934	2380	2.233	0.25571	17.232	0.2631	2404	9.458	139.5	0.35	0.68
COMBUSTOR	0	29	22 4														
54.819	27.854	3159	389.6(930)	1.2761	26.722	2738											
54.819	17.500	2852	285.8(829)	1.2869	26.724	2613	0.872	2279	2.242	0.24182	17.232	0.2782	2468	8.564	143.2	0.35	0.77
COMBUSTOR	0	30	23 4														
55.760	28.204	3009	386.7(883)	1.2833	26.565	2688											
55.760	21.302	2827	325.4(823)	1.2896	26.566	2612	0.670	1751	2.232	0.22681	17.232	0.2966	2556	6.171	148.3	0.35	0.68
COMBUSTOR	0	31	24 5														
56.234	27.580	2876	400.2(925)	1.2924	23.937	2778											
56.234	23.217	2765	359.9(885)	1.2961	23.937	2729	0.520	1420	2.409	0.18471	17.392	0.3676	2954	4.077	169.8	0.67	0.37
COMBUSTOR	0	32	25 3														
56.244	27.593	2867	400.2(922)	1.2928	23.928	2775											
56.244	23.258	2758	360.3(882)	1.2965	23.929	2726	0.518	1413	2.408	0.18458	17.392	0.3679	2955	4.054	169.9	0.67	0.37
COMBUSTOR	0	33	26 4														
56.299	27.353	3023	400.0(975)	1.2854	24.082	2832											
56.299	22.715	2900	354.6(931)	1.2896	24.083	2779	0.542	1507	2.421	0.18399	17.392	0.3691	2962	4.310	170.3	0.67	0.42
COMBUSTOR	0	34	27 3														
56.439	27.440	2971	399.6(957)	1.2878	24.032	2814											
56.439	22.998	2856	357.1(916)	1.2918	24.032	2763	0.528	1459	2.417	0.18277	17.392	0.3715	2977	4.144	171.2	0.67	0.41
COMBUSTOR	0	35	28 21														
56.519	26.829	4425	399.4(1468)	1.1934	25.625	3201											
56.519	24.369	4359	366.7(1443)	1.1966	25.644	3180	0.402	1280	2.483	0.18478	17.392	0.3675	2986	3.676	171.7	0.67	1.00
COMBUSTOR	0	36	29 21														
56.799	27.443	4424	398.6(1468)	1.1937	25.627	3201											
56.799	25.500	4374	373.6(1449)	1.1962	25.641	3185	0.351	1119	2.481	0.18414	17.392	0.3688	3014	3.203	173.3	0.67	1.00
COMBUSTOR	0	37	30 21														
57.025	27.220	4423	397.9(1468)	1.1937	25.627	3200											
57.025	24.655	4355	364.3(1442)	1.1971	25.646	3179	0.408	1298	2.482	0.18382	17.392	0.3694	3034	3.708	174.5	0.67	1.00

READING = 0097 BLOCK = 102 TIME = 201.414 MACH 5.2 PT = 210.250 TT = 2165.3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR 0 38 31 21																	
57.749	26.623	4418	395.7(1466)	1.1938	25.627	3199											
57.749	21.950	4286	330.7(1415)	1.2005	25.664	3157	0.572	1805	2.483	0.18094	17.392	0.3753	3085	5.075	177.4	0.67	1.00
COMBUSTOR 0 39 32 21																	
58.769	27.141	4413	392.6(1464)	1.1944	25.631	3197											
58.769	23.362	4310	342.0(1424)	1.1996	25.659	3165	0.503	1592	2.481	0.17979	17.392	0.3777	3121	4.449	179.4	0.67	1.00
COMBUSTOR 0 40 33 21																	
60.779	27.254	4401	386.3(1459)	1.1953	25.635	3194											
60.779	20.925	4219	298.1(1390)	1.2047	25.681	3137	0.670	2101	2.479	0.18604	17.392	0.3650	3092	6.074	177.8	0.67	1.00
COMBUSTOR 0 41 34 200																	
62.199	27.572	4393	381.8(1456)	1.1960	25.639	3192											
62.199	16.425	4034	212.9(1320)	1.2151	25.718	3078	0.944	2907	2.477	0.19109	17.392	0.3553	3066	8.633	176.3	0.67	1.00
SONIC THROAT 42 35 200																	
62.199	29.452	4396	381.8(1457)	1.1967	25.642	3194											
62.199	16.425	3990	192.4(1303)	1.2182	25.727	3065	1.005	3078	2.472	0.19109	17.392	0.3553	3159	9.142	181.6	0.67	1.00
COMBUSTOR REGEN 43 36 5																	
62.199	27.572	4485	431.6(1492)	1.1895	25.602	3219											
62.199	18.002	4195	288.2(1380)	1.2046	25.682	3128	0.857	2679	2.488	0.19109	17.392	0.3553	3086	7.955	177.5	0.67	1.00
NOZZLE AE 44 37 4																	
87.275	27.572	4393	381.8(1442)	1.1960	25.639	3192											
87.275	0.638	2054	-533.2(611)	1.3007	25.791	2270	2.981	6766	2.477	0.03505	17.392	1.9372	3974	3.686	228.5	0.67	1.00
NOZZLE PO 45 38 4																	
87.275	27.572	4393	381.8(1442)	1.1960	25.639	3192											
87.275	0.313	1738	-636.8(508)	1.3152	25.791	2099	3.401	7139	2.477	0.02148	17.392	3.1608	4113	2.383	236.5	0.67	1.00
NOZZLE AE REGEN 46 39 4																	
87.275	27.572	4485	431.6(1492)	1.1895	25.602	3219											
87.275	0.656	2138	-505.1(639)	1.2973	25.791	2312	2.961	6846	2.488	0.03505	17.392	1.9372	4026	3.729	231.5	0.67	1.00
NOZZLE PO REGEN 47 40 4																	
87.275	27.572	4485	431.6(1492)	1.1895	25.602	3219											
87.275	0.313	1799	-616.9(527)	1.3122	25.791	2133	3.395	7244	2.488	0.02105	17.392	3.2255	4174	2.370	240.0	0.67	1.00
FICTIVE COMBUSTR 69 62 0																	
62.199	100.037	4438	381.8(1472)	1.2088	25.689	3222											
62.199	0.313	1261	-785.4(359)	1.3432	25.791	1807	4.229	7642	2.377	0.03169	17.392	2.1425	4303	3.764	247.4	0.67	1.00
FICTIVE NOZZLE 70 63 0																	
87.275	15.943	4286	336.8(1415)	1.1961	25.646	3152											
87.275	0.815	2388	-420.1(724)	1.2877	25.791	2435	2.528	6154	2.509	0.03505	17.392	1.9371	3731	3.353	214.5	0.67	1.00

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OR	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	7.100E-01	0.000	-2.642E-01	0.000	0.000	0.000	2.470E-02	2.266E 00	3.377E-03	0.000	0.000
1.836E 01	7.100E-01	0.000	-2.361E 01	0.000	0.000	0.000	1.634E 02	2.266E 00	3.377E-03	0.000	0.000
3.070E 01	1.275E 00	0.000	-1.041E 02	0.000	0.000	0.000	5.053E 02	4.069E 00	6.064E-03	0.000	0.000
3.508E 01	2.152E 00	0.000	-2.151E 02	0.000	0.000	0.000	6.804E 02	6.870E 00	1.024E-02	0.000	0.000
3.518E 01	2.178E 00	3.048E 00	-2.491E 02	0.000	0.000	0.000	6.847E 02	6.950E 00	1.036E-02	9.726E 00	1.450E-02
3.518E 01	2.179E 00	3.038E 00	-2.491E 02	0.000	0.000	0.000	6.850E 02	6.955E 00	1.037E-02	9.697E 00	1.445E-02
3.555E 01	2.275E 00	2.466E 00	-2.533E 02	0.000	0.000	0.000	7.218E 02	7.261E 00	1.082E-02	7.870E 00	1.173E-02
3.585E 01	2.205E 00	2.000E 00	-2.592E 02	-1.161E 02	-1.161E 02	0.000	7.521E 02	7.036E 00	1.049E-02	6.383E 00	9.512E-03
3.606E 01	2.155E 00	2.642E 00	-2.632E 02	-1.175E 02	-1.175E 02	0.000	7.738E 02	6.878E 00	1.025E-02	8.431E 00	1.256E-02
3.648E 01	2.484E 00	3.918E 00	-2.695E 02	-1.204E 02	-1.204E 02	0.000	8.174E 02	7.927E 00	1.181E-02	1.251E 01	1.864E-02
3.701E 01	2.467E 00	5.529E 00	-2.775E 02	-1.502E 02	-1.242E 02	-2.599E 01	8.734E 02	7.875E 00	1.174E-02	1.765E 01	2.630E-02
3.731E 01	3.142E 00	6.437E 00	-2.828E 02	-1.607E 02	-1.265E 02	-3.420E 01	9.055E 02	1.003E 01	1.495E-02	2.055E 01	3.062E-02
3.803E 01	4.770E 00	8.797E 00	-3.094E 02	-1.858E 02	-1.323E 02	-5.358E 01	9.843E 02	1.522E 01	2.269E-02	2.808E 01	4.184E-02
3.833E 01	6.300E 00	9.775E 00	-3.216E 02	-1.967E 02	-1.351E 02	-6.156E 01	1.018E 03	2.011E 01	2.997E-02	3.120E 01	4.649E-02
3.875E 01	8.456E 00	1.036E 01	-3.422E 02	-2.130E 02	-1.403E 02	-7.276E 01	1.065E 03	2.699E 01	4.022E-02	3.306E 01	4.926E-02
3.880E 01	8.707E 00	1.042E 01	-3.444E 02	-2.150E 02	-1.410E 02	-7.406E 01	1.071E 03	2.779E 01	4.141E-02	3.327E 01	4.958E-02
3.901E 01	9.787E 00	1.068E 01	-3.529E 02	-2.239E 02	-1.442E 02	-7.964E 01	1.095E 03	3.124E 01	4.655E-02	3.408E 01	5.079E-02
3.931E 01	9.704E 00	1.104E 01	-3.625E 02	-2.371E 02	-1.496E 02	-8.753E 01	1.129E 03	3.097E 01	4.615E-02	3.523E 01	5.250E-02
3.950E 01	9.650E 00	7.766E 00	-3.677E 02	-2.460E 02	-1.534E 02	-9.253E 01	1.151E 03	3.080E 01	4.590E-02	2.478E 01	3.694E-02
3.980E 01	9.945E 00	2.650E 00	-3.803E 02	-2.605E 02	-1.603E 02	-1.002E 02	1.186E 03	3.174E 01	4.730E-02	8.458E 00	1.260E-02
4.000E 01	1.014E 01	2.802E 00	-3.915E 02	-2.708E 02	-1.655E 02	-1.053E 02	1.210E 03	3.237E 01	4.825E-02	8.943E 00	1.333E-02
4.040E 01	1.202E 01	3.105E 00	-4.137E 02	-2.920E 02	-1.768E 02	-1.152E 02	1.257E 03	3.836E 01	5.716E-02	9.908E 00	1.477E-02
4.041E 01	1.207E 01	3.112E 00	-4.141E 02	-2.925E 02	-1.771E 02	-1.155E 02	1.258E 03	3.851E 01	5.739E-02	9.932E 00	1.480E-02
4.129E 01	1.621E 01	3.781E 00	-4.692E 02	-3.431E 02	-2.055E 02	-1.376E 02	1.362E 03	5.173E 01	7.709E-02	1.207E 01	1.798E-02
4.136E 01	1.651E 01	3.830E 00	-4.735E 02	-3.471E 02	-2.078E 02	-1.393E 02	1.370E 03	5.270E 01	7.854E-02	1.222E 01	1.821E-02
4.150E 01	1.717E 01	4.138E 00	-4.830E 02	-3.557E 02	-2.129E 02	-1.428E 02	1.387E 03	5.481E 01	8.169E-02	1.321E 01	1.968E-02
4.246E 01	1.035E 01	6.234E 00	-5.198E 02	-4.131E 02	-2.484E 02	-1.648E 02	1.502E 03	3.303E 01	4.923E-02	1.990E 01	2.965E-02
4.408E 01	1.336E 01	9.769E 00	-5.358E 02	-5.021E 02	-2.987E 02	-2.034E 02	1.698E 03	4.264E 01	6.354E-02	3.118E 01	4.646E-02
4.431E 01	1.379E 01	1.120E 01	-5.381E 02	-5.135E 02	-3.042E 02	-2.093E 02	1.726E 03	4.401E 01	6.558E-02	3.574E 01	5.326E-02
4.479E 01	1.469E 01	1.419E 01	-5.392E 02	-5.348E 02	-3.146E 02	-2.202E 02	1.785E 03	4.688E 01	6.986E-02	4.529E 01	6.750E-02
4.480E 01	1.470E 01	1.423E 01	-5.393E 02	-5.350E 02	-3.147E 02	-2.203E 02	1.786E 03	4.692E 01	6.992E-02	4.541E 01	6.768E-02
4.552E 01	1.297E 01	1.867E 01	-5.225E 02	-5.619E 02	-3.290E 02	-2.330E 02	1.874E 03	4.140E 01	6.169E-02	5.960E 01	8.882E-02
4.626E 01	1.119E 01	1.653E 01	-4.870E 02	-5.878E 02	-3.441E 02	-2.438E 02	1.965E 03	3.571E 01	5.321E-02	5.275E 01	7.862E-02
4.731E 01	8.662E 00	1.349E 01	-4.364E 02	-6.253E 02	-3.663E 02	-2.590E 02	2.095E 03	2.765E 01	4.120E-02	4.305E 01	6.415E-02
4.732E 01	8.633E 00	1.346E 01	-4.360E 02	-6.256E 02	-3.665E 02	-2.591E 02	2.096E 03	2.755E 01	4.106E-02	4.297E 01	6.403E-02
4.811E 01	6.000E 00	1.076E 01	-3.985E 02	-6.541E 02	-3.838E 02	-2.703E 02	2.195E 03	1.915E 01	2.854E-02	3.433E 01	5.116E-02
4.877E 01	8.501E 00	8.501E 00	-3.676E 02	-6.778E 02	-3.987E 02	-2.791E 02	2.277E 03	2.713E 01	4.043E-02	2.713E 01	4.043E-02
4.930E 01	6.687E 00	6.687E 00	-3.466E 02	-6.968E 02	-4.109E 02	-2.859E 02	2.344E 03	2.134E 01	3.181E-02	2.134E 01	3.181E-02
5.071E 01	8.437E 00	8.437E 00	-2.907E 02	-7.489E 02	-4.446E 02	-3.044E 02	2.521E 03	2.693E 01	4.013E-02	2.693E 01	4.013E-02
5.281E 01	1.605E 01	1.605E 01	-1.559E 02	-8.380E 02	-4.979E 02	-3.401E 02	2.788E 03	5.122E 01	7.634E-02	5.122E 01	7.634E-02
5.331E 01	1.603E 01	1.603E 01	-1.142E 02	-8.616E 02	-5.112E 02	-3.504E 02	2.851E 03	5.117E 01	7.626E-02	5.117E 01	7.626E-02
5.405E 01	1.675E 01	1.675E 01	-5.156E 01	-8.978E 02	-5.312E 02	-3.665E 02	2.946E 03	5.346E 01	7.968E-02	5.346E 01	7.968E-02
5.406E 01	1.676E 01	1.676E 01	-5.071E 01	-8.983E 02	-5.315E 02	-3.668E 02	2.947E 03	5.350E 01	7.972E-02	5.350E 01	7.972E-02
5.482E 01	1.750E 01	1.750E 01	1.570E 01	-9.371E 02	-5.526E 02	-3.845E 02	3.045E 03	5.585E 01	8.323E-02	5.585E 01	8.323E-02
5.576E 01	2.130E 01	2.130E 01	1.072E 02	-9.876E 02	-5.794E 02	-4.082E 02	3.166E 03	6.799E 01	1.013E-01	6.799E 01	1.013E-01
5.623E 01	2.322E 01	2.322E 01	5.057E 02	-1.012E 03	-5.914E 02	-4.209E 02	3.208E 03	7.410E 01	1.104E-01	7.410E 01	1.104E-01
5.624E 01	2.326E 01	2.326E 01	5.073E 02	-1.013E 03	-5.916E 02	-4.211E 02	3.209E 03	7.423E 01	1.106E-01	7.423E 01	1.106E-01
5.630E 01	2.195E 01	2.348E 01	5.139E 02	-1.015E 03	-5.928E 02	-4.226E 02	3.216E 03	7.005E 01	1.044E-01	7.494E 01	1.117E-01
5.644E 01	2.195E 01	2.405E 01	5.294E 02	-1.022E 03	-5.958E 02	-4.265E 02	3.234E 03	7.005E 01	1.044E-01	7.674E 01	1.144E-01
5.652E 01	2.437E 01	2.437E 01	5.391E 02	-1.026E 03	-5.976E 02	-4.287E 02	3.244E 03	7.777E 01	1.159E-01	7.777E 01	1.159E-01
5.680E 01	2.550E 01	2.550E 01	5.717E 02	-1.040E 03	-6.037E 02	-4.367E 02	3.280E 03	8.138E 01	1.213E-01	8.138E 01	1.213E-01
5.702E 01	2.466E 01	2.466E 01	5.961E 02	-1.052E 03	-6.087E 02	-4.433E 02	3.309E 03	7.869E 01	1.173E-01	7.869E 01	1.173E-01
5.775E 01	2.195E 01	2.195E 01	6.592E 02	-1.090E 03	-6.249E 02	-4.649E 02	3.402E 03	7.005E 01	1.044E-01	7.005E 01	1.044E-01
5.877E 01	2.336E 01	2.336E 01	7.117E 02	-1.144E 03	-6.482E 02	-4.959E 02	3.532E 03	7.456E 01	1.111E-01	7.456E 01	1.111E-01
6.078E 01	2.092E 01	2.092E 01	7.169E 02	-1.254E 03	-6.970E 02	-5.572E 02	3.790E 03	6.678E 01	9.952E-02	6.678E 01	9.952E-02
6.220E 01	1.642E 01	1.642E 01	7.169E 02	-1.333E 03	-7.355E 02	-5.976E 02	3.972E 03	5.242E 01	7.812E-02	5.242E 01	7.812E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.466E 01	1.348E 01	1.348E 01	7.169E 02	-1.477E 03	-8.142E 02	-6.632E 02	4.289E 03	4.304E 01	6.414E-02	4.304E 01	6.414E-02
6.504E 01	1.200E 01	1.304E 01	7.169E 02	-1.500E 03	-8.275E 02	-6.729E 02	4.337E 03	3.830E 01	5.707E-02	4.161E 01	6.200E-02
6.508E 01	1.200E 01	1.299E 01	7.169E 02	-1.503E 03	-8.289E 02	-6.739E 02	4.342E 03	3.830E 01	5.707E-02	4.145E 01	6.178E-02
6.528E 01	1.130E 01	1.275E 01	7.169E 02	-1.515E 03	-8.360E 02	-6.788E 02	4.368E 03	3.607E 01	5.376E-02	4.069E 01	6.064E-02
6.694E 01	5.512E 00	4.950E 00	8.135E 02	-1.603E 03	-8.848E 02	-7.186E 02	4.583E 03	1.759E 01	2.622E-02	1.580E 01	2.354E-02
6.761E 01	4.236E 00	1.260E 00	8.944E 02	-1.636E 03	-8.998E 02	-7.361E 02	4.665E 03	1.352E 01	2.015E-02	4.021E 00	5.993E-03
6.836E 01	2.770E 00	2.053E 00	9.702E 02	-1.674E 03	-9.144E 02	-7.600E 02	4.760E 03	8.840E 00	1.317E-02	6.553E 00	9.766E-03
6.910E 01	2.323E 00	2.795E 00	1.036E 03	-1.714E 03	-9.267E 02	-7.878E 02	4.848E 03	7.415E 00	1.105E-02	8.920E 00	1.329E-02
6.971E 01	1.945E 00	2.226E 00	1.086E 03	-1.746E 03	-9.368E 02	-8.089E 02	4.922E 03	6.208E 00	9.251E-03	7.105E 00	1.059E-02
7.066E 01	1.370E 00	1.340E 00	1.141E 03	-1.775E 03	-9.520E 02	-8.226E 02	5.036E 03	4.373E 00	6.517E-03	4.277E 00	6.373E-03
7.109E 01	1.110E 00	1.325E 00	1.159E 03	-1.783E 03	-9.587E 02	-8.241E 02	5.088E 03	3.543E 00	5.279E-03	4.228E 00	6.300E-03
7.262E 01	8.914E-01	1.270E 00	1.214E 03	-1.820E 03	-9.794E 02	-8.403E 02	5.273E 03	2.845E 00	4.240E-03	4.053E 00	6.040E-03
7.277E 01	8.700E-01	1.239E 00	1.218E 03	-1.824E 03	-9.812E 02	-8.429E 02	5.290E 03	2.777E 00	4.138E-03	3.955E 00	5.894E-03
7.352E 01	1.155E 00	1.085E 00	1.256E 03	-1.848E 03	-9.894E 02	-8.585E 02	5.374E 03	3.686E 00	5.493E-03	3.463E 00	5.161E-03
7.352E 01	1.156E 00	1.084E 00	1.258E 03	-1.848E 03	-9.894E 02	-8.586E 02	5.375E 03	3.691E 00	5.500E-03	3.460E 00	5.157E-03
7.485E 01	1.660E 00	0.000	1.288E 03	-1.893E 03	-1.002E 03	-8.912E 02	5.426E 03	5.298E 00	7.895E-03	0.000	0.000
7.770E 01	1.290E 00	0.000	1.347E 03	-2.057E 03	-1.022E 03	-1.035E 03	5.525E 03	4.117E 00	6.136E-03	0.000	0.000
8.160E 01	1.165E 00	0.000	1.399E 03	-2.074E 03	-1.039E 03	-1.035E 03	5.630E 03	3.718E 00	5.541E-03	0.000	0.000
8.441E 01	1.350E 00	0.000	1.427E 03	-2.088E 03	-1.053E 03	-1.035E 03	5.684E 03	4.309E 00	6.421E-03	0.000	0.000
8.727E 01	1.880E 00	0.000	1.466E 03	-2.114E 03	-1.080E 03	-1.035E 03	5.707E 03	6.000E 00	8.942E-03	0.000	0.000
8.727E 01	1.881E 00	0.000	1.466E 03	-2.114E 03	-1.080E 03	-1.035E 03	5.707E 03	6.004E 00	8.947E-03	0.000	0.000

READING = 0097 BLOCK = 102 TIME = 201.414 MACH 5.2 PT = 210.250 TT = 2165.3

X	DDRAG	CDRAG	CF	HC
4.040E 01	6.721E 01	6.721E 01	2.447E-03	2.845E-02
4.041E 01	9.450E-02	6.731E 01	2.456E-03	2.964E-02
4.129E 01	8.294E 00	7.560E 01	2.581E-03	3.158E-02
4.136E 01	6.106E-01	7.621E 01	2.590E-03	3.177E-02
4.150E 01	1.326E 00	7.754E 01	2.610E-03	3.208E-02
4.246E 01	8.910E 00	8.645E 01	2.692E-03	3.301E-02
4.408E 01	1.462E 01	1.011E 02	2.736E-03	3.253E-02
4.431E 01	2.039E 00	1.031E 02	2.744E-03	3.257E-02
4.479E 01	4.268E 00	1.074E 02	2.753E-03	3.254E-02
4.480E 01	5.412E-02	1.074E 02	2.753E-03	3.255E-02
4.552E 01	6.310E 00	1.137E 02	2.730E-03	3.156E-02
4.626E 01	6.421E 00	1.202E 02	2.666E-03	2.937E-02
4.731E 01	8.782E 00	1.289E 02	2.572E-03	2.608E-02
4.732E 01	6.444E-02	1.290E 02	2.571E-03	2.606E-02
4.811E 01	6.255E 00	1.353E 02	2.497E-03	2.341E-02
4.877E 01	4.857E 00	1.401E 02	2.432E-03	2.089E-02
4.930E 01	3.633E 00	1.438E 02	2.386E-03	1.908E-02
5.071E 01	8.611E 00	1.524E 02	2.253E-03	1.518E-02
5.281E 01	1.019E 01	1.626E 02	2.724E-03	2.779E-02
5.331E 01	1.895E 00	1.644E 02	2.766E-03	2.697E-02
5.405E 01	2.860E 00	1.673E 02	3.262E-03	2.328E-02
5.406E 01	4.004E-02	1.673E 02	3.355E-03	2.232E-02
5.482E 01	2.948E 00	1.703E 02	3.349E-03	2.211E-02
5.576E 01	3.054E 00	1.733E 02	3.504E-03	2.003E-02
5.623E 01	7.819E-01	1.741E 02	3.658E-03	1.698E-02
5.624E 01	1.844E-02	1.741E 02	3.450E-03	1.870E-02
5.630E 01	1.011E-01	1.742E 02	3.412E-03	1.940E-02
5.644E 01	2.590E-01	1.745E 02	3.483E-03	1.853E-02
5.652E 01	1.489E-01	1.747E 02	3.960E-03	1.424E-02
5.680E 01	4.892E-01	1.751E 02	4.014E-03	1.318E-02
5.702E 01	3.958E-01	1.755E 02	3.930E-03	1.451E-02
5.775E 01	1.563E 00	1.771E 02	3.755E-03	1.738E-02
5.877E 01	2.350E 00	1.795E 02	3.794E-03	1.641E-02
6.078E 01	5.053E 00	1.845E 02	3.653E-03	1.901E-02
6.220E 01	4.795E 00	1.893E 02	3.505E-03	2.060E-02
6.466E 01	1.050E 01	2.108E 02	3.520E-03	2.043E-02
6.504E 01	1.768E 00	2.126E 02	3.498E-03	1.997E-02
6.508E 01	1.906E-01	2.128E 02	3.497E-03	1.995E-02
6.528E 01	9.573E-01	2.137E 02	3.487E-03	1.969E-02
6.694E 01	7.701E 00	2.214E 02	3.312E-03	1.275E-02
6.761E 01	2.435E 00	2.239E 02	3.207E-03	8.295E-03
6.838E 01	2.365E 00	2.262E 02	3.182E-03	7.552E-03
6.910E 01	2.149E 00	2.284E 02	3.183E-03	7.859E-03
6.971E 01	1.742E 00	2.301E 02	3.154E-03	6.792E-03
7.066E 01	2.275E 00	2.324E 02	3.092E-03	4.947E-03
7.109E 01	8.824E-01	2.333E 02	3.073E-03	4.561E-03
7.262E 01	2.915E 00	2.362E 02	3.045E-03	4.155E-03
7.277E 01	2.606E-01	2.365E 02	3.040E-03	4.077E-03
7.352E 01	1.291E 00	2.377E 02	3.045E-03	4.261E-03
7.352E 01	2.517E-03	2.377E 02	3.045E-03	4.262E-03
7.485E 01	9.083E-01	2.387E 02	3.095E-03	5.700E-03
7.770E 01	1.781E 00	2.404E 02	3.044E-03	4.702E-03
8.160E 01	1.704E 00	2.421E 02	3.010E-03	4.326E-03
8.441E 01	8.936E-01	2.430E 02	3.018E-03	4.810E-03
8.727E 01	4.258E-01	2.435E 02	3.053E-03	6.115E-03
8.727E 01	0.000	2.435E 02	3.053E-03	6.117E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1087.	(LBF)
MEASURED THRUST	1208.	(LBF)
CALCULATED SPECIFIC IMPULSE	3242.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3604.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.7374	
MEASURED THRUST COEFFICIENT	0.8197	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	3780.	(LBF)
NET THRUST	1136.	(LBF)
SPECIFIC IMPULSE	3388.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.7707	

MOMENTUM AND FORCES

INLET FRICTION DRAG	67.2	(LBF)
INLET MOMENTUM CHANGE	-480.9	(LBF)
COMBUSTOR FRICTION DRAG	122.1	(LBF)
COMBUSTOR STRUT DRAG	83.53	(LBF)
COMBUSTOR MOMENTUM CHANGE	903.	(LBF)
NOZZLE FRICTION DRAG	43.15	(LBF)
NOZZLE STRUT DRAG	41.18	(LBF)
NOZZLE MOMENTUM CHANGE	665.	(LBF)
NOZZLE PRESSURE INTEGRAL	749.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-737.	(LBF)
TOTAL STRUT DRAG	124.71	(LBF)
CAVITY FORCE	-1412.	(LBF)
CALCULATED LOAD CELL FORCE	-1062.	(LBF)
MEASURED LOAD CELL FORCE	-941.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -137.8,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2989	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.183	(IN)
NOZZLE SHROUD TRAILING EDGE	73.523	(IN)
NOZZLE PLUG TRAILING EDGE	87.275	(IN)
STRUT LEADING EDGE	56.439	(IN)
STRUT TRAILING EDGE	65.039	(IN)
COMBUSTOR EXIT	62.199	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8643	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2836	
DELTA PT2	0.0707	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4758	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2886	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9114	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9202	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9258	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8908	
ENTHALPY AT P0 - SUPERSONIC	-23.18	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-6.85	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0197
EQUIVALENCE RATIO	0.668
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.2756
COMBUSTOR EFFECTIVENESS	0.9106
INJECTOR DISCHARGE COEFFICIENTS	0.7310, 0.6854,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9389
NOZZLE COEFFICIENT - CT	0.8694
PROCESS EFFICIENCY	0.8964
KINETIC ENERGY EFFICIENCY	0.8650

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.284	
1C	44.300	
2A	48.759	
2C	46.250	
3A	54.049	E
3B	56.234	E
4	44.784	

Reading 97

t = 224.81 sec.

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	4														
0.000	210.750	2166	426.4(	555)	1.3208	28.837	2221											
0.000	0.298	364	-41.8(	88)	1.3981	28.836	936	5.170	4840	1.820	0.07412	16.408	0.8643	2534	5.575	154.5		
SPIKE TIP NS		2	0	6														
0.600	10.825	2166	426.4(	555)	1.3208	28.836	2221											
0.600	9.800	2114	411.7(	541)	1.3226	28.836	2196	0.390	857	2.025	0.07412	16.408	0.8643	2606	0.987	158.9		
WIND TUNNEL		3	0	0														
0.000	210.750	2166	426.4(	555)	1.3208	28.837	2221											
0.000	0.314	369	-40.5(	89)	1.3982	28.836	943	5.125	4834	1.820	0.07678	16.997	0.8643	2623	5.768	154.3		
SPIKE TIP NS		4	0	0														
0.600	10.825	2166	426.4(	555)	1.3208	28.836	2221											
0.600	9.717	2110	410.4(	540)	1.3228	28.836	2194	0.407	893	2.024	0.07678	16.997	0.8643	2623	1.066	154.3		
INLET THROAT		5	0	4														
40.400	100.886	2101	408.0(	537)	1.3231	28.836	2189											
40.400	10.019	1162	154.5(	284)	1.3695	28.836	1656	2.151	3562	1.862	0.57337	16.997	0.1117	2168	32.879	127.6		
INLET UPNRSK		6	0	2														
40.400	100.886	2101	408.0(	537)	1.3231	28.836	2189											
40.400	9.030	1129	146.3(	276)	1.3715	28.836	1634											
								2.215	3619	1.862	0.53996	16.997	0.1229	2196	30.369	129.2		
INLET DNNRSK		7	0	4														
40.400	60.827	2101	408.0(	537)	1.3231	28.836	2189											
40.400	50.446	2007	381.5(	511)	1.3265	28.836	2143	0.537	1151	1.897	0.53996	16.997	0.1229	2196	9.661	129.2		
COMBUSTOR	0	8	1	4														
40.410	100.805	2101	408.0(	537)	1.3231	28.836	2189											
40.410	10.662	1181	159.5(	289)	1.3682	28.836	1669	2.112	3526	1.862	0.59388	16.997	0.1117	2168	32.542	127.5		
COMBUSTOR	0	9	2	4														
41.294	84.641	2089	404.6(	534)	1.3235	28.836	2183											
41.294	12.264	1277	184.2(	314)	1.3623	28.836	1732	1.918	3321	1.873	0.59515	16.997	0.1115	2105	30.715	123.8		
COMBUSTOR	0	10	3	4														
41.359	83.693	2088	404.3(	533)	1.3236	28.836	2183											
41.359	12.416	1284	186.1(	315)	1.3618	28.836	1737	1.903	3304	1.873	0.59609	16.997	0.1113	2100	30.610	123.5		
COMBUSTOR	0	11	4	4														
41.500	81.410	2086	403.7(	533)	1.3236	28.836	2182											
41.500	12.713	1301	190.3(	320)	1.3608	28.836	1747	1.871	3268	1.875	0.59608	16.997	0.1113	2089	30.272	122.9		
COMBUSTOR	0	12	5	5														
42.460	72.591	2073	399.9(	529)	1.3241	28.836	2175											
42.460	13.820	1361	206.0(	335)	1.3571	28.836	1784	1.745	3114	1.881	0.59020	16.997	0.1124	2043	28.565	120.2		
COMBUSTOR	0	13	6	4														
44.079	66.495	2052	394.0(	523)	1.3249	28.836	2165											
44.079	13.983	1382	211.5(	341)	1.3558	28.836	1797	1.681	3022	1.884	0.57063	16.997	0.1163	2013	26.796	118.4		
COMBUSTOR	0	14	7	3														
44.310	65.868	2049	393.3(	522)	1.3250	28.836	2163											
44.310	14.053	1385	212.4(	342)	1.3556	28.836	1799	1.672	3008	1.884	0.56958	16.997	0.1165	2009	26.628	118.2		
COMBUSTOR	0	15	8	3														
44.794	65.087	2044	391.9(	521)	1.3251	28.836	2161											
44.794	14.071	1386	212.7(	342)	1.3556	28.836	1800	1.663	2994	1.885	0.56706	16.997	0.1170	2003	26.385	117.9		
COMBUSTOR	0	16	9	3														
44.800	65.072	2044	391.9(	521)	1.3251	28.836	2161											
44.800	14.074	1386	212.7(	342)	1.3556	28.836	1800	1.663	2994	1.885	0.56707	16.997	0.1170	2003	26.381	117.9		
COMBUSTOR	0	17	10	4														
45.519	66.013	2038	390.1(	519)	1.3254	28.836	2158											
45.519	13.269	1355	204.6(	334)	1.3574	28.836	1781	1.710	3046	1.883	0.55644	16.997	0.1193	2014	26.341	118.5		
COMBUSTOR	0	18	11	4														
46.260	68.874	2031	388.3(	518)	1.3256	28.836	2155											
46.260	11.675	1291	187.9(	317)	1.3614	28.836	1741	1.819	3167	1.879	0.53419	16.997	0.1242	2044	26.288	120.3		

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
47.310	73.122	2022	385.8(515)	1.3259	28.836	2150											
47.310	9.619	1201	164.6(294)	1.3670	28.836	1683											
							1.977	3327	1.874	0.49714	16.997	0.1335	2086	25.703	122.8		
COMBUSTOR	0	20	13 3														
47.319	73.161	2022	385.8(515)	1.3259	28.836	2150											
47.319	9.606	1201	164.5(294)	1.3670	28.836	1682	1.978	3328	1.873	0.49692	16.997	0.1335	2087	25.700	122.8		
COMBUSTOR	0	21	14 3														
48.110	76.409	2015	383.9(513)	1.3262	28.836	2147											
48.110	8.149	1131	146.7(276)	1.3714	28.836	1635	2.107	3445	1.870	0.46331	16.997	0.1432	2119	24.807	124.7		
COMBUSTOR	0	22	15 4														
48.769	78.637	2010	382.3(511)	1.3264	28.836	2144											
48.769	6.899	1069	131.0(260)	1.3753	28.836	1592	2.227	3546	1.867	0.42702	16.997	0.1554	2148	23.532	126.4		
COMBUSTOR	0	23	16 4														
49.299	80.238	2005	380.9(510)	1.3265	28.836	2141											
49.299	6.052	1023	119.4(249)	1.3781	28.836	1559	2.320	3618	1.865	0.39937	16.997	0.1662	2169	22.453	127.6		
COMBUSTOR	0	24	17 12														
50.709	100.274	1991	376.9(506)	1.3271	28.836	2134											
50.709	4.002	851	76.5(206)	1.3878	28.836	1427	2.717	3877	1.847	0.34037	16.997	0.1950	2248	20.507	132.3		
COMBUSTOR	0	25	18 202														
52.809	44.954	2116	367.4(546)	1.3210	28.687	2201											
52.809	19.100	1712	254.2(433)	1.3368	28.687	1992	1.195	2380	1.934	0.28079	17.108	0.2379	2429	10.384	142.0	0.03	1.00
COMBUSTOR	0	26	19 200														
53.309	40.613	2110	365.6(544)	1.3213	28.687	2198											
53.309	21.933	1813	282.0(460)	1.3324	28.687	2046	0.999	2045	1.940	0.26932	17.108	0.2480	2481	8.559	145.0	0.03	1.00
COMBUSTOR	0	27	20 2														
54.049	31.075	2968	393.8(897)	1.2863	25.695	2718											
54.049	22.407	2758	321.5(826)	1.2938	25.696	2627	0.724	1903	2.280	0.25716	17.316	0.2629	2533	7.607	146.3	0.45	0.54
COMBUSTOR	0	28	21 2														
54.059	31.069	2969	393.8(897)	1.2863	25.697	2718											
54.059	22.413	2759	321.5(826)	1.2934	25.698	2628	0.724	1902	2.280	0.25696	17.316	0.2631	2534	7.597	146.4	0.45	0.54
COMBUSTOR	0	29	22 4														
54.819	30.693	3085	390.8(934)	1.2806	25.829	2757											
54.819	22.900	2891	323.5(869)	1.2873	25.830	2677	0.686	1835	2.288	0.24300	17.316	0.2782	2620	6.931	151.3	0.45	0.60
COMBUSTOR	0	30	23 3														
55.760	30.532	3133	386.9(950)	1.2781	25.894	2773											
55.760	23.946	2971	330.0(894)	1.2838	25.895	2706	0.624	1688	2.291	0.22792	17.316	0.2966	2728	5.977	157.5	0.45	0.63
COMBUSTOR	0	31	24 6														
56.234	29.118	3025	407.7(1029)	1.2867	22.801	2913											
56.234	24.472	2910	362.8(985)	1.2907	22.801	2862	0.524	1500	2.524	0.18612	17.525	0.3676	3121	4.338	178.1	0.86	0.36
COMBUSTOR	0	32	25 2														
56.244	29.119	3024	407.6(1028)	1.2868	22.800	2913											
56.244	24.483	2909	362.8(984)	1.2908	22.800	2861	0.523	1498	2.524	0.18599	17.525	0.3679	3123	4.329	178.2	0.86	0.36
COMBUSTOR	0	33	26 5														
56.299	28.499	3423	407.4(1174)	1.2665	23.185	3049											
56.299	22.972	3271	345.6(1115)	1.2723	23.188	2987	0.589	1759	2.553	0.18540	17.525	0.3691	3130	5.068	178.6	0.86	0.48
COMBUSTOR	0	34	27 3														
56.439	28.497	3434	406.9(1178)	1.2659	23.198	3052											
56.439	23.050	3284	345.9(1120)	1.2716	23.200	2991	0.584	1748	2.554	0.18417	17.525	0.3715	3145	5.002	179.5	0.86	0.48
COMBUSTOR	0	35	28 10														
56.519	29.457	3084	406.6(1050)	1.2839	22.858	2934											
56.519	24.789	2968	361.2(1006)	1.2879	22.859	2883	0.523	1507	2.527	0.18620	17.525	0.3675	3154	4.360	180.0	0.86	0.38
COMBUSTOR	0	36	29 3														
56.799	29.689	3095	405.5(1054)	1.2833	22.872	2938											
56.799	25.100	2982	361.2(1011)	1.2872	22.872	2889	0.515	1489	2.527	0.18555	17.525	0.3688	3182	4.294	181.6	0.86	0.38
COMBUSTOR	0	37	30 4														
57.025	29.505	3365	404.7(1153)	1.2696	23.134	3030											
57.025	24.422	3231	351.1(1101)	1.2746	23.136	2975	0.550	1637	2.546	0.18523	17.525	0.3694	3202	4.713	182.7	0.86	0.46

READING = 0097 BLOCK = 128 TIME = 224.814 MACH 5.2 PT = 210.750 TT = 2166.2

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	w	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 5														
57.749	28.698	4042	401.9(1404)	1.2269	23.841	3216											
57.749	22.250	3856	318.2(1330)	1.2361	23.859	3152	0.649	2047	2.583	0.18232	17.525	0.3753	3254	5.799	185.6	0.86	0.69
COMBUSTOR	0	39	32 4														
58.769	29.277	3844	398.0(1330)	1.2410	23.640	3168											
58.769	23.587	3686	329.7(1268)	1.2482	23.649	3110	0.595	1850	2.572	0.18116	17.525	0.3777	3289	5.208	187.7	0.86	0.62
COMBUSTOR	0	40	33 5														
60.779	29.073	4365	390.2(1525)	1.2002	24.228	3279											
60.779	21.375	4150	282.9(1438)	1.2117	24.274	3209	0.722	2317	2.591	0.18747	17.525	0.3650	3260	6.750	186.0	0.86	0.82
COMBUSTOR	0	41	34 5														
62.199	28.729	4708	384.6(1654)	1.1671	24.630	3330											
62.199	17.175	4390	196.4(1524)	1.1813	24.781	3226	0.951	3069	2.596	0.19255	17.525	0.3553	3235	9.183	184.6	0.86	0.99
COMBUSTOR REGEN		42	35 21														
62.199	28.729	4737	406.0(1666)	1.1653	24.605	3340											
62.199	15.106	4341	171.2(1504)	1.1831	24.796	3209	1.068	3428	2.601	0.19255	17.525	0.3553	3242	10.257	185.0	0.86	0.99
NOZZLE AE		43	36 4														
87.275	28.729	4708	384.6(1645)	1.1671	24.630	3330											
87.275	0.732	2413	-651.4(763)	1.2820	24.992	2481	2.903	7200	2.596	0.03532	17.525	1.9372	4285	3.952	244.5	0.86	0.99
NOZZLE PO		44	37 4														
87.275	28.729	4708	384.6(1645)	1.1671	24.630	3330											
87.275	0.314	1995	-799.3(616)	1.2986	24.993	2270	3.391	7697	2.596	0.01960	17.525	3.4909	4473	2.344	255.3	0.86	0.99
NOZZLE AE REGEN		45	38 4														
87.275	28.729	4737	406.0(1666)	1.1653	24.605	3340											
87.275	0.740	2449	-638.3(776)	1.2807	24.992	2498	2.894	7229	2.601	0.03532	17.525	1.9373	4305	3.968	245.6	0.86	0.99
NOZZLE PO REGEN		46	39 4														
87.275	28.729	4737	406.0(1666)	1.1653	24.605	3340											
87.275	0.314	2021	-790.2(625)	1.2974	24.993	2284	3.388	7737	2.601	0.01945	17.525	3.5186	4497	2.338	256.6	0.86	0.99
FICTIVE COMBUSTR		68	61 0														
62.199	100.886	4826	384.6(1700)	1.1791	24.763	3380											
62.199	0.314	1494	-983.9(447)	1.3241	25.041	1901	4.176	8275	2.494	0.02820	17.525	2.4265	4703	3.626	268.3	0.86	1.00
FICTIVE NOZZLE		69	62 0														
87.275	13.427	4604	354.4(1613)	1.1612	24.584	3287											
87.275	1.059	3023	-422.9(988)	1.2580	24.987	2751	2.267	6237	2.651	0.03532	17.525	1.9371	3923	3.424	223.8	0.86	0.99

READING = 0097 BLOCK = 128 TIME = 224.814 MACH 5.2 PT = 210.750 TT = 2166.2

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	7.150E-01	0.000	-2.648E-01	0.000	0.000	0.000	2.470E-02	2.277E 00	3.393E-03	0.000	0.000
1.836E 01	7.150E-01	0.000	-2.377E 01	0.000	0.000	0.000	1.634E 02	2.277E 00	3.393E-03	0.000	0.000
3.070E 01	1.270E 00	0.000	-1.042E 02	0.000	0.000	0.000	5.053E 02	4.044E 00	6.026E-03	0.000	0.000
3.508E 01	2.152E 00	0.000	-2.151E 02	0.000	0.000	0.000	6.804E 02	6.852E 00	1.021E-02	0.000	0.000
3.518E 01	2.177E 00	3.055E 00	-2.491E 02	0.000	0.000	0.000	6.847E 02	6.933E 00	1.033E-02	9.728E 00	1.450E-02
3.518E 01	2.179E 00	3.045E 00	-2.492E 02	0.000	0.000	0.000	6.850E 02	6.938E 00	1.034E-02	9.697E 00	1.445E-02
3.555E 01	2.275E 00	2.455E 00	-2.533E 02	0.000	0.000	0.000	7.218E 02	7.244E 00	1.079E-02	7.818E 00	1.165E-02
3.585E 01	2.213E 00	1.975E 00	-2.593E 02	-1.103E 02	-1.103E 02	0.000	7.521E 02	7.048E 00	1.050E-02	6.289E 00	9.371E-03
3.606E 01	2.170E 00	2.615E 00	-2.635E 02	-1.117E 02	-1.117E 02	0.000	7.738E 02	6.910E 00	1.030E-02	8.326E 00	1.241E-02
3.648E 01	2.500E 00	3.888E 00	-2.700E 02	-1.144E 02	-1.144E 02	0.000	8.174E 02	7.960E 00	1.186E-02	1.238E 01	1.845E-02
3.701E 01	2.467E 00	5.494E 00	-2.782E 02	-1.492E 02	-1.181E 02	-3.113E 01	8.734E 02	7.857E 00	1.171E-02	1.749E 01	2.607E-02
3.731E 01	3.147E 00	6.400E 00	-2.836E 02	-1.612E 02	-1.202E 02	-4.095E 01	9.055E 02	1.002E 01	1.493E-02	2.038E 01	3.037E-02
3.803E 01	4.785E 00	8.804E 00	-3.105E 02	-1.899E 02	-1.258E 02	-6.416E 01	9.843E 02	1.524E 01	2.270E-02	2.803E 01	4.177E-02
3.833E 01	6.311E 00	9.800E 00	-3.227E 02	-2.023E 02	-1.286E 02	-7.371E 01	1.018E 03	2.009E 01	2.994E-02	3.120E 01	4.650E-02
3.875E 01	8.460E 00	1.036E 01	-3.433E 02	-2.210E 02	-1.339E 02	-8.711E 01	1.065E 03	2.694E 01	4.014E-02	3.299E 01	4.916E-02
3.880E 01	8.710E 00	1.042E 01	-3.455E 02	-2.233E 02	-1.346E 02	-8.866E 01	1.071E 03	2.773E 01	4.133E-02	3.319E 01	4.947E-02
3.901E 01	9.787E 00	1.069E 01	-3.540E 02	-2.334E 02	-1.380E 02	-9.535E 01	1.095E 03	3.116E 01	4.644E-02	3.403E 01	5.072E-02
3.931E 01	9.719E 00	1.106E 01	-3.636E 02	-2.486E 02	-1.438E 02	-1.048E 02	1.129E 03	3.095E 01	4.612E-02	3.522E 01	5.249E-02
3.950E 01	9.675E 00	7.791E 00	-3.688E 02	-2.588E 02	-1.480E 02	-1.108E 02	1.151E 03	3.081E 01	4.591E-02	2.481E 01	3.697E-02
3.980E 01	9.963E 00	2.675E 00	-3.814E 02	-2.755E 02	-1.555E 02	-1.200E 02	1.186E 03	3.172E 01	4.727E-02	8.518E 00	1.269E-02
4.000E 01	1.016E 01	2.831E 00	-3.925E 02	-2.874E 02	-1.613E 02	-1.261E 02	1.210E 03	3.234E 01	4.819E-02	9.015E 00	1.343E-02
4.040E 01	1.204E 01	3.142E 00	-4.147E 02	-3.118E 02	-1.739E 02	-1.379E 02	1.257E 03	3.833E 01	5.712E-02	1.001E 01	1.491E-02
4.041E 01	1.208E 01	3.150E 00	-4.152E 02	-3.124E 02	-1.742E 02	-1.382E 02	1.258E 03	3.848E 01	5.734E-02	1.003E 01	1.495E-02
4.129E 01	1.624E 01	3.837E 00	-4.701E 02	-3.705E 02	-2.058E 02	-1.647E 02	1.362E 03	5.172E 01	7.707E-02	1.222E 01	1.821E-02
4.136E 01	1.655E 01	3.887E 00	-4.744E 02	-3.751E 02	-2.084E 02	-1.667E 02	1.370E 03	5.269E 01	7.852E-02	1.238E 01	1.845E-02
4.150E 01	1.721E 01	4.193E 00	-4.839E 02	-3.850E 02	-2.141E 02	-1.709E 02	1.387E 03	5.481E 01	8.167E-02	1.335E 01	1.989E-02
4.246E 01	1.035E 01	6.268E 00	-5.206E 02	-4.505E 02	-2.536E 02	-1.960E 02	1.502E 03	3.296E 01	4.911E-02	1.996E 01	2.974E-02
4.408E 01	1.333E 01	9.769E 00	-5.364E 02	-5.505E 02	-3.095E 02	-2.411E 02	1.698E 03	4.246E 01	6.327E-02	3.111E 01	4.635E-02
4.431E 01	1.376E 01	1.124E 01	-5.386E 02	-5.633E 02	-3.156E 02	-2.477E 02	1.726E 03	4.381E 01	6.529E-02	3.579E 01	5.333E-02
4.479E 01	1.465E 01	1.432E 01	-5.395E 02	-5.871E 02	-3.271E 02	-2.600E 02	1.785E 03	4.665E 01	6.952E-02	4.560E 01	6.795E-02
4.480E 01	1.466E 01	1.436E 01	-5.396E 02	-5.873E 02	-3.272E 02	-2.601E 02	1.786E 03	4.669E 01	6.957E-02	4.573E 01	6.814E-02
4.552E 01	1.295E 01	1.894E 01	-5.220E 02	-6.175E 02	-3.431E 02	-2.744E 02	1.874E 03	4.123E 01	6.144E-02	6.030E 01	8.986E-02
4.626E 01	1.118E 01	1.667E 01	-4.858E 02	-6.468E 02	-3.602E 02	-2.866E 02	1.965E 03	3.561E 01	5.306E-02	5.307E 01	7.909E-02
4.731E 01	8.681E 00	1.345E 01	-4.349E 02	-6.894E 02	-3.856E 02	-3.038E 02	2.095E 03	2.764E 01	4.119E-02	4.283E 01	6.383E-02
4.732E 01	8.651E 00	1.342E 01	-4.346E 02	-6.897E 02	-3.858E 02	-3.039E 02	2.096E 03	2.755E 01	4.105E-02	4.275E 01	6.370E-02
4.811E 01	6.000E 00	1.132E 01	-3.959E 02	-7.225E 02	-4.059E 02	-3.166E 02	2.195E 03	1.910E 01	2.847E-02	3.604E 01	5.370E-02
4.877E 01	9.562E 00	9.562E 00	-3.623E 02	-7.500E 02	-4.233E 02	-3.266E 02	2.277E 03	3.045E 01	4.537E-02	3.045E 01	4.537E-02
4.930E 01	8.150E 00	8.150E 00	-3.378E 02	-7.722E 02	-4.378E 02	-3.344E 02	2.344E 03	2.595E 01	3.867E-02	2.595E 01	3.867E-02
5.071E 01	1.558E 01	1.558E 01	-2.501E 02	-8.408E 02	-4.779E 02	-3.629E 02	2.521E 03	4.961E 01	7.393E-02	4.961E 01	7.393E-02
5.281E 01	1.910E 01	1.910E 01	-5.916E 01	-9.624E 02	-5.428E 02	-4.195E 02	2.788E 03	6.082E 01	9.063E-02	6.082E 01	9.063E-02
5.331E 01	2.193E 01	2.193E 01	-5.822E 00	-9.930E 02	-5.592E 02	-4.338E 02	2.851E 03	6.984E 01	1.041E-01	6.984E 01	1.041E-01
5.405E 01	2.241E 01	2.241E 01	7.884E 01	-1.040E 03	-5.840E 02	-4.564E 02	2.946E 03	7.135E 01	1.063E-01	7.135E 01	1.063E-01
5.406E 01	2.241E 01	2.241E 01	7.998E 01	-1.041E 03	-5.844E 02	-4.567E 02	2.947E 03	7.137E 01	1.064E-01	7.137E 01	1.064E-01
5.482E 01	2.290E 01	2.290E 01	1.678E 02	-1.093E 03	-6.107E 02	-4.819E 02	3.045E 03	7.292E 01	1.087E-01	7.292E 01	1.087E-01
5.576E 01	2.395E 01	2.395E 01	2.783E 02	-1.160E 03	-6.444E 02	-5.158E 02	3.166E 03	7.625E 01	1.136E-01	7.625E 01	1.136E-01
5.623E 01	2.447E 01	2.447E 01	6.727E 02	-1.194E 03	-6.595E 02	-5.341E 02	3.208E 03	7.792E 01	1.161E-01	7.792E 01	1.161E-01
5.624E 01	2.448E 01	2.448E 01	6.743E 02	-1.194E 03	-6.598E 02	-5.345E 02	3.209E 03	7.796E 01	1.162E-01	7.796E 01	1.162E-01
5.630E 01	2.140E 01	2.454E 01	6.813E 02	-1.198E 03	-6.613E 02	-5.367E 02	3.216E 03	6.814E 01	1.015E-01	7.815E 01	1.165E-01
5.644E 01	2.140E 01	2.470E 01	6.973E 02	-1.207E 03	-6.652E 02	-5.423E 02	3.234E 03	6.814E 01	1.015E-01	7.865E 01	1.172E-01
5.652E 01	2.479E 01	2.479E 01	7.073E 02	-1.213E 03	-6.674E 02	-5.454E 02	3.244E 03	7.893E 01	1.176E-01	7.893E 01	1.176E-01
5.680E 01	2.510E 01	2.510E 01	7.398E 02	-1.231E 03	-6.752E 02	-5.563E 02	3.280E 03	7.992E 01	1.191E-01	7.992E 01	1.191E-01
5.702E 01	2.442E 01	2.442E 01	7.639E 02	-1.247E 03	-6.815E 02	-5.650E 02	3.309E 03	7.776E 01	1.159E-01	7.776E 01	1.159E-01
5.775E 01	2.225E 01	2.225E 01	8.272E 02	-1.295E 03	-7.022E 02	-5.926E 02	3.402E 03	7.085E 01	1.056E-01	7.085E 01	1.056E-01
5.877E 01	2.359E 01	2.359E 01	8.803E 02	-1.363E 03	-7.323E 02	-6.306E 02	3.532E 03	7.511E 01	1.119E-01	7.511E 01	1.119E-01
6.078E 01	2.137E 01	2.137E 01	8.855E 02	-1.500E 03	-7.952E 02	-7.052E 02	3.790E 03	6.806E 01	1.014E-01	6.806E 01	1.014E-01
6.220E 01	1.717E 01	1.717E 01	8.855E 02	-1.598E 03	-8.435E 02	-7.549E 02	3.972E 03	5.469E 01	8.149E-02	5.469E 01	8.149E-02

XABS		P-IB		P-OB		FDA		QOX		Q-IB		Q-OB		CAWALL		P-IB/PSO		P-IB/PTO	P-OB/PSO		P-OB/PTO
6.466E	01	1.390E	01	1.390E	01	8.855E	02	-1.771E	03	-9.366E	02	-8.348E	02	4.289E	03	4.428E	01	6.598E-02	4.428E	01	6.598E-02
6.504E	01	1.220E	01	1.341E	01	8.855E	02	-1.799E	03	-9.519E	02	-8.466E	02	4.337E	03	3.885E	01	5.789E-02	4.269E	01	6.361E-02
6.508E	01	1.220E	01	1.335E	01	8.855E	02	-1.801E	03	-9.535E	02	-8.479E	02	4.342E	03	3.885E	01	5.789E-02	4.252E	01	6.336E-02
6.528E	01	1.151E	01	1.309E	01	8.855E	02	-1.815E	03	-9.616E	02	-8.538E	02	4.368E	03	3.665E	01	5.461E-02	4.167E	01	6.210E-02
6.694E	01	5.775E	00	4.900E	00	9.841E	02	-1.920E	03	-1.018E	03	-9.021E	02	4.583E	03	1.839E	01	2.740E-02	1.560E	01	2.325E-02
6.761E	01	4.381E	00	1.267E	00	1.067E	03	-1.959E	03	-1.036E	03	-9.230E	02	4.665E	03	1.395E	01	2.079E-02	4.036E	00	6.014E-03
6.838E	01	2.780E	00	2.137E	00	1.144E	03	-2.005E	03	-1.053E	03	-9.513E	02	4.760E	03	8.852E	00	1.319E-02	6.804E	00	1.014E-02
6.910E	01	2.412E	00	2.950E	00	1.212E	03	-2.052E	03	-1.068E	03	-9.839E	02	4.848E	03	7.680E	00	1.144E-02	9.393E	00	1.400E-02
6.971E	01	2.100E	00	2.346E	00	1.265E	03	-2.088E	03	-1.079E	03	-1.009E	03	4.922E	03	6.687E	00	9.964E-03	7.470E	00	1.113E-02
7.066E	01	1.443E	00	1.405E	00	1.324E	03	-2.125E	03	-1.096E	03	-1.029E	03	5.036E	03	4.593E	00	6.845E-03	4.474E	00	6.667E-03
7.109E	01	1.145E	00	1.389E	00	1.343E	03	-2.136E	03	-1.103E	03	-1.033E	03	5.086E	03	3.646E	00	5.433E-03	4.421E	00	6.589E-03
7.262E	01	9.082E-01		1.330E	00	1.399E	03	-2.181E	03	-1.125E	03	-1.056E	03	5.273E	03	2.892E	00	4.309E-03	4.235E	00	6.311E-03
7.277E	01	8.850E-01		1.292E	00	1.404E	03	-2.186E	03	-1.127E	03	-1.059E	03	5.290E	03	2.818E	00	4.199E-03	4.113E	00	6.129E-03
7.352E	01	1.182E	00	1.100E	00	1.442E	03	-2.213E	03	-1.136E	03	-1.077E	03	5.374E	03	3.765E	00	5.611E-03	3.503E	00	5.219E-03
7.352E	01	1.184E	00	1.099E	00	1.444E	03	-2.213E	03	-1.136E	03	-1.078E	03	5.375E	03	3.770E	00	5.618E-03	3.499E	00	5.215E-03
7.485E	01	1.710E	00	0.000		1.475E	03	-2.265E	03	-1.149E	03	-1.116E	03	5.426E	03	5.445E	00	8.114E-03	0.000		0.000
7.770E	01	1.350E	00	0.000		1.536E	03	-2.059E	03	-1.171E	03	-8.871E	02	5.525E	03	4.299E	00	6.406E-03	0.000		0.000
8.160E	01	1.175E	00	0.000		1.590E	03	-2.079E	03	-1.192E	03	-8.871E	02	5.630E	03	3.741E	00	5.575E-03	0.000		0.000
8.441E	01	1.370E	00	0.000		1.618E	03	-2.096E	03	-1.209E	03	-8.871E	02	5.684E	03	4.362E	00	6.501E-03	0.000		0.000
8.727E	01	2.055E	00	0.000		1.660E	03	-2.128E	03	-1.241E	03	-8.871E	02	5.707E	03	6.543E	00	9.751E-03	0.000		0.000
8.727E	01	2.056E	00	0.000		1.660E	03	-2.128E	03	-1.241E	03	-8.871E	02	5.707E	03	6.548E	00	9.758E-03	0.000		0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	6.728E 01	6.728E 01	2.439E-03	2.840E-02
4.041E 01	9.454E-02	6.737E 01	2.449E-03	2.960E-02
4.129E 01	8.299E 00	7.567E 01	2.571E-03	3.150E-02
4.136E 01	6.110E-01	7.628E 01	2.580E-03	3.167E-02
4.150E 01	1.327E 00	7.761E 01	2.600E-03	3.199E-02
4.246E 01	8.919E 00	8.653E 01	2.680E-03	3.288E-02
4.408E 01	1.465E 01	1.012E 02	2.721E-03	3.235E-02
4.431E 01	2.044E 00	1.032E 02	2.728E-03	3.239E-02
4.479E 01	4.277E 00	1.075E 02	2.736E-03	3.234E-02
4.480E 01	5.425E-02	1.076E 02	2.737E-03	3.234E-02
4.552E 01	6.324E 00	1.139E 02	2.710E-03	3.131E-02
4.626E 01	6.431E 00	1.203E 02	2.644E-03	2.910E-02
4.731E 01	8.783E 00	1.291E 02	2.546E-03	2.580E-02
4.732E 01	6.438E-02	1.292E 02	2.545E-03	2.578E-02
4.811E 01	6.245E 00	1.354E 02	2.466E-03	2.310E-02
4.877E 01	4.840E 00	1.402E 02	2.392E-03	2.051E-02
4.930E 01	3.613E 00	1.439E 02	2.336E-03	1.863E-02
5.071E 01	8.464E 00	1.523E 02	2.103E-03	1.407E-02
5.281E 01	9.927E 00	1.622E 02	2.724E-03	3.045E-02
5.331E 01	1.692E 00	1.639E 02	2.881E-03	2.899E-02
5.405E 01	2.406E 00	1.663E 02	3.415E-03	2.387E-02
5.406E 01	3.321E-02	1.664E 02	3.416E-03	2.385E-02
5.482E 01	2.412E 00	1.688E 02	3.404E-03	2.337E-02
5.576E 01	2.679E 00	1.715E 02	3.458E-03	2.190E-02
5.623E 01	7.847E-01	1.722E 02	3.684E-03	1.831E-02
5.624E 01	1.976E-02	1.723E 02	3.462E-03	2.027E-02
5.630E 01	1.132E-01	1.724E 02	3.378E-03	2.206E-02
5.644E 01	3.085E-01	1.727E 02	3.516E-03	2.063E-02
5.652E 01	1.777E-01	1.729E 02	3.904E-03	1.662E-02
5.680E 01	5.683E-01	1.734E 02	3.460E-03	2.032E-02
5.702E 01	4.459E-01	1.739E 02	3.408E-03	2.147E-02
5.775E 01	1.650E 00	1.755E 02	3.369E-03	2.300E-02
5.877E 01	2.510E 00	1.780E 02	3.610E-03	2.007E-02
6.078E 01	5.425E 00	1.835E 02	3.427E-03	2.308E-02
6.220E 01	4.993E 00	1.885E 02	3.452E-03	2.293E-02
8.727E 01	1.592E 00	2.004E 02	3.559E-03	1.910E-02
6.466E 01	1.106E 01	2.115E 02	3.598E-03	2.172E-02
6.504E 01	1.877E 00	2.134E 02	3.578E-03	2.116E-02
6.508E 01	2.025E-01	2.136E 02	3.577E-03	2.115E-02
6.528E 01	1.017E 00	2.146E 02	3.569E-03	2.086E-02
6.694E 01	8.131E 00	2.227E 02	3.420E-03	1.340E-02
6.761E 01	2.556E 00	2.253E 02	3.323E-03	8.743E-03
6.838E 01	2.476E 00	2.278E 02	3.298E-03	7.912E-03
6.910E 01	2.261E 00	2.300E 02	3.303E-03	8.397E-03
6.971E 01	1.854E 00	2.319E 02	3.277E-03	7.345E-03
7.066E 01	2.424E 00	2.343E 02	3.216E-03	5.293E-03
7.109E 01	9.338E-01	2.352E 02	3.197E-03	4.845E-03
7.262E 01	3.073E 00	2.383E 02	3.170E-03	4.399E-03
7.277E 01	2.740E-01	2.386E 02	3.166E-03	4.306E-03
7.352E 01	1.351E 00	2.399E 02	3.168E-03	4.457E-03
7.352E 01	2.624E-03	2.399E 02	3.168E-03	4.458E-03
7.485E 01	9.505E-01	2.409E 02	3.215E-03	6.013E-03
7.770E 01	1.877E 00	2.428E 02	3.167E-03	5.018E-03
8.160E 01	1.786E 00	2.445E 02	3.128E-03	4.489E-03
8.441E 01	9.274E-01	2.455E 02	3.135E-03	5.015E-03
8.727E 01	4.529E-01	2.459E 02	3.177E-03	6.734E-03

READING = 0097 BLOCK = 128 TIME = 224.814 MACH 5.2 PT = 210.750 TT = 2166.2

X	DDRAG	CDRAG	CF	HC
8.727E 01	0.000	2.459E 02	3.177E-03	6.738E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1272.	(LBF)
MEASURED THRUST	1404.	(LBF)
CALCULATED SPECIFIC IMPULSE	2937.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3241.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.8612	
MEASURED THRUST COEFFICIENT	0.9504	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3941.	(LBF)
NET THRUST	1290.	(LBF)
SPECIFIC IMPULSE	2978.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.8733	

MOMENTUM AND FORCES

INLET FRICTION DRAG	67.3	(LBF)
INLET MOMENTUM CHANGE	-482.0	(LBF)
COMBUSTOR FRICTION DRAG	121.2	(LBF)
COMBUSTOR STRUT DRAG	83.00	(LBF)
COMBUSTOR MOMENTUM CHANGE	1066.	(LBF)
NOZZLE FRICTION DRAG	45.49	(LBF)
NOZZLE STRUT DRAG	40.92	(LBF)
NOZZLE MOMENTUM CHANGE	688.	(LBF)
NOZZLE PRESSURE INTEGRAL	774.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-739.	(LBF)
TOTAL STRUT DRAG	123.92	(LBF)
CAVITY FORCE	-1447.	(LBF)
CALCULATED LOAD CELL FORCE	-914.	(LBF)
MEASURED LOAD CELL FORCE	-782.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -142.1,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2989	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.183	(IN)
NOZZLE SHROUD TRAILING EDGE	73.523	(IN)
NOZZLE PLUG TRAILING EDGE	87.275	(IN)
STRUT LEADING EDGE	56.439	(IN)
STRUT TRAILING EDGE	65.039	(IN)
COMBUSTOR EXIT	62.199	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8643	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2837	
DELTA PT2	0.0706	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4787	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2886	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9128	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9207	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9243	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8890	
ENTHALPY AT P0 - SUPERSONIC	-23.54	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-7.07	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0253
EQUIVALENCE RATIO	0.862
COMBUSTOR EFFICIENCY	0.987
TOTAL PRESSURE RATIO	0.2848
COMBUSTOR EFFECTIVENESS	0.9091
INJECTOR DISCHARGE COEFFICIENTS	0.7349, 0.6899,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9154
NOZZLE COEFFICIENT - CT	0.8420
PROCESS EFFICIENCY	0.8002
KINETIC ENERGY EFFICIENCY	0.8078

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.284	
1C	44.300	
2A	48.759	
2C	46.250	
3A	54.049	E
3B	56.234	E
4	44.784	

Reading 97

t = 252.71 sec.

READING = 0097 BLOCK = 159 TIME = 252.714 MACH 5.2 PI = 416.749 TI = 2229.9

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	FUPTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	416.749	2230	444.5(573)	1.3186	28.837	2252											
0.000	0.586	375	-39.0(90)	1.3983	28.836	951	5.170	4919	1.781	0.14317	31.694	0.8643	4975	10.944	157.0		
SPIKE TIP NS		2	0 6														
0.600	21.575	2230	444.5(573)	1.3186	28.836	2252											
0.600	19.608	2179	430.0(559)	1.3204	28.836	2227	0.383	853	1.985	0.14317	31.694	0.8643	5180	1.897	163.5		
WIND TUNNEL		3	0 0														
0.000	416.749	2230	444.5(573)	1.3186	28.837	2252											
0.000	0.630	383	-37.1(92)	1.3984	28.836	961	5.106	4909	1.781	0.15058	33.334	0.8643	5225	11.487	156.8		
SPIKE TIP NS		4	0 0														
0.600	21.575	2230	444.5(573)	1.3186	28.836	2252											
0.600	19.369	2172	428.1(557)	1.3206	28.836	2224	0.407	905	1.985	0.15058	33.334	0.8643	5225	2.118	156.8		
INLET THROAT		5	0 4														
40.400	205.459	2165	426.0(555)	1.3209	28.837	2220											
40.400	19.182	1181	159.3(289)	1.3683	28.836	1669	2.189	3653	1.821	1.10756	33.334	0.1117	4333	66.123	130.0		
INLET UPNRBK		6	0 3														
40.400	205.459	2165	426.0(555)	1.3209	28.837	2220											
40.400	17.758	1156	153.1(283)	1.3698	28.836	1652	2.236	3695	1.821	1.05896	33.334	0.1229	4387	60.808	131.6		
INLET DNNRBK		7	0 4														
40.400	121.676	2165	426.0(555)	1.3209	28.837	2220											
40.400	101.166	2069	399.0(528)	1.3242	28.836	2174	0.534	1161	1.858	1.05896	33.334	0.1229	4387	19.104	131.6		
COMBUSTOR	0	8	1 4														
40.410	205.500	2165	425.9(555)	1.3209	28.837	2220											
40.410	20.932	1208	166.5(296)	1.3665	28.836	1687	2.135	3603	1.821	1.16471	33.334	0.1117	4332	65.218	130.0		
COMBUSTOR	0	9	2 4														
41.294	171.306	2156	423.4(553)	1.3212	28.836	2216											
41.294	24.199	1313	193.4(323)	1.3601	28.836	1754	1.934	3393	1.833	1.16720	33.334	0.1115	4206	61.538	126.2		
COMBUSTOR	0	10	3 4														
41.359	169.290	2155	423.2(552)	1.3212	28.836	2216											
41.359	24.510	1321	195.5(325)	1.3596	28.836	1759	1.918	3376	1.834	1.16903	33.334	0.1113	4196	61.325	125.9		
COMBUSTOR	0	11	4 4														
41.500	164.502	2154	422.8(552)	1.3212	28.836	2215											
41.500	25.115	1338	200.1(330)	1.3585	28.836	1770	1.865	3338	1.835	1.16901	33.334	0.1113	4174	60.642	125.2		
COMBUSTOR	0	12	5 5														
42.460	145.662	2143	419.7(549)	1.3216	28.837	2210											
42.460	27.452	1406	217.9(347)	1.3544	28.836	1812	1.754	3177	1.842	1.15748	33.334	0.1124	4082	57.151	122.5		
COMBUSTOR	0	13	6 4														
44.079	133.381	2123	414.2(543)	1.3223	28.836	2200											
44.079	27.841	1431	224.4(354)	1.3530	28.836	1827	1.687	3081	1.846	1.11911	33.334	0.1163	4022	53.592	120.7		
COMBUSTOR	0	14	7 4														
44.310	132.062	2120	413.4(543)	1.3224	28.836	2199											
44.310	27.994	1434	225.4(355)	1.3527	28.836	1829	1.677	3067	1.846	1.11704	33.334	0.1165	4013	53.242	120.4		
COMBUSTOR	0	15	8 3														
44.794	129.294	2115	411.9(541)	1.3226	28.836	2196											
44.794	28.310	1443	227.6(357)	1.3523	28.836	1834	1.656	3037	1.847	1.11211	33.334	0.1170	3995	52.485	119.8		
COMBUSTOR	0	16	9 3														
44.800	129.243	2115	411.9(541)	1.3226	28.836	2196											
44.800	28.323	1443	227.6(357)	1.3522	28.836	1834	1.655	3036	1.847	1.11213	33.334	0.1170	3994	52.473	119.8		
COMBUSTOR	0	17	10 3														
45.519	125.547	2108	410.0(539)	1.3228	28.836	2193											
45.519	28.010	1445	228.1(358)	1.3521	28.836	1835	1.644	3016	1.848	1.09128	33.334	0.1193	3981	51.156	119.4		
COMBUSTOR	0	18	11 3														
46.260	123.595	2102	408.2(537)	1.3231	28.836	2190											
46.260	26.056	1419	221.3(351)	1.3536	28.836	1820	1.660	3058	1.848	1.04765	33.334	0.1242	3997	49.785	119.9		

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	A/A*	W	A/AC	MOMTM	G	IVAL	PHI	ETAC
COMBUSTOR	0	19	12	5														
47.310	126.143	2093	405.7(	535)	1.3234	28.836	2165											
47.310	21.951	1343	201.4(	331)	1.3582	28.836	1774	1.805	3197	1.646	0.97499	33.334	0.1335	4063	46.445	121.9		
COMBUSTOR	0	20	13	5														
47.319	126.198	2093	405.7(	535)	1.3234	28.836	2165											
47.319	21.922	1343	201.3(	331)	1.3582	28.836	1773	1.804	3198	1.646	0.97455	33.334	0.1335	4064	46.441	121.9		
COMBUSTOR	0	21	14	6														
48.110	133.068	2085	403.4(	533)	1.3237	28.836	2161											
48.110	18.223	1255	178.6(	308)	1.3636	28.836	1718	1.953	3354	1.641	0.90864	33.334	0.1432	4144	47.367	124.3		
COMBUSTOR	0	22	15	9														
48.759	83.959	2250	437.6(	677)	1.3214	24.586	2452											
48.759	43.479	1913	327.1(	567)	1.3338	24.586	2271	1.035	2351	2.160	0.85038	33.804	0.1552	4199	31.074	124.2	0.49	0.12
COMBUSTOR	0	23	16	2														
48.769	83.888	2253	437.5(	678)	1.3213	24.589	2453											
48.769	43.548	1916	327.3(	568)	1.3337	24.589	2273	1.033	2349	2.160	0.84928	33.804	0.1554	4201	30.998	124.3	0.49	0.12
COMBUSTOR	0	24	17	4														
49.299	80.689	2384	435.2(	719)	1.3152	24.720	2511											
49.299	47.225	2092	338.5(	623)	1.3255	24.720	2362	0.931	2200	2.178	0.79428	33.804	0.1662	4321	27.152	127.8	0.49	0.19
COMBUSTOR	0	25	18	5														
50.709	74.007	2783	427.4(	847)	1.2967	25.135	2672											
50.709	41.906	2439	310.1(	731)	1.3063	25.135	2512	0.964	2422	2.221	0.67694	33.804	0.1950	4638	25.483	137.2	0.49	0.36
COMBUSTOR	0	26	19	5														
52.809	66.119	3308	414.2(	1023)	1.2716	25.611	2858											
52.809	35.250	2884	263.3(	876)	1.2862	25.614	2683	1.024	2748	2.273	0.55669	33.917	0.2379	5044	23.773	148.7	0.50	0.63
COMBUSTOR	0	27	20	3														
53.309	65.867	3311	411.7(	1024)	1.2714	25.623	2858											
53.309	44.350	3040	314.3(	930)	1.2808	25.625	2749	0.803	2207	2.273	0.53394	33.917	0.2480	5144	18.315	151.7	0.50	0.64
COMBUSTOR	0	28	21	5														
54.049	63.444	3243	424.8(	1065)	1.2766	23.945	2932											
54.049	41.900	2960	318.1(	961)	1.2862	23.947	2812	0.822	2311	2.393	0.50683	34.128	0.2629	5273	18.201	154.5	0.72	0.46
COMBUSTOR	0	29	22	2														
54.059	63.418	3246	424.8(	1066)	1.2764	23.948	2933											
54.059	41.867	2963	317.9(	962)	1.2861	23.950	2813	0.822	2313	2.393	0.50644	34.128	0.2631	5275	18.203	154.6	0.72	0.46
COMBUSTOR	0	30	23	4														
54.819	61.455	3500	420.8(	1155)	1.2636	24.220	3013											
54.819	39.350	3184	298.6(	1038)	1.2749	24.224	2887	0.857	2472	2.411	0.47892	34.128	0.2782	5427	18.401	159.0	0.72	0.56
COMBUSTOR	0	31	24	4														
55.760	60.405	3647	415.5(	1208)	1.2555	24.390	3055											
55.760	41.608	3378	308.9(	1107)	1.2657	24.397	2952	0.783	2310	2.420	0.44920	34.128	0.2966	5611	16.124	164.4	0.72	0.62
COMBUSTOR	0	32	25	4														
56.234	56.526	4051	425.8(	1432)	1.2329	23.386	3259											
56.234	42.745	3842	332.1(	1348)	1.2420	23.401	3184	0.680	2165	2.565	0.36470	34.340	0.3676	6335	12.270	184.5	0.93	0.64
COMBUSTOR	0	33	26	2														
56.244	56.522	4052	425.7(	1433)	1.2328	23.387	3259											
56.244	42.769	3844	332.2(	1348)	1.2419	23.402	3185	0.679	2163	2.565	0.36444	34.340	0.3679	6338	12.249	184.6	0.93	0.64
COMBUSTOR	0	34	27	4														
56.299	55.972	4209	429.4(	1493)	1.2220	23.555	3295											
56.299	41.200	3981	319.6(	1400)	1.2324	23.579	3217	0.715	2301	2.572	0.36329	34.340	0.3691	6350	12.990	184.9	0.93	0.69
COMBUSTOR	0	35	28	3														
56.439	55.926	4228	424.7(	1500)	1.2206	23.577	3299											
56.439	41.368	4004	320.1(	1409)	1.2309	23.602	3222	0.710	2287	2.573	0.36087	34.340	0.3715	6377	12.825	185.7	0.93	0.70
COMBUSTOR	0	36	29	21														
56.519	55.004	4907	424.2(	1761)	1.1620	24.322	3414											
56.519	43.428	4763	331.0(	1701)	1.1660	24.407	3363	0.642	2160	2.588	0.36484	34.340	0.3675	6392	12.244	186.1	0.93	1.00
COMBUSTOR	0	37	30	21														
56.799	55.525	4906	422.7(	1761)	1.1622	24.325	3414											
56.799	44.100	4765	331.9(	1702)	1.1661	24.407	3364	0.634	2132	2.587	0.36357	34.340	0.3688	6441	12.046	187.6	0.93	1.00

READING = 0097 BLOCK = 159 TIME = 252.714 MACH 5.2 PT = 416.749 TT = 2229.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR 0 38 31 21																	
57.025	55.782	4905	421.5(1761)	1.1624	24.327	3414											
57.025	43.612	4755	324.6(1697)	1.1665	24.414	3361	0.655	2202	2.586	0.36295	34.340	0.3694	6477	12.423	186.6	0.93	1.00
COMBUSTOR 0 39 32 21																	
57.749	55.980	4901	417.7(1759)	1.1626	24.332	3412											
57.749	42.050	4725	305.5(1685)	1.1676	24.432	3351	0.707	2370	2.585	0.35726	34.340	0.3753	6571	13.156	191.4	0.93	1.00
COMBUSTOR 0 40 33 21																	
58.769	56.732	4895	412.7(1756)	1.1631	24.339	3410											
58.769	44.137	4741	314.2(1691)	1.1675	24.427	3357	0.662	2221	2.583	0.35498	34.340	0.3777	6640	12.251	193.4	0.93	1.00
COMBUSTOR 0 41 34 21																	
60.779	57.730	4885	403.2(1752)	1.1639	24.352	3407											
60.779	40.762	4670	267.9(1661)	1.1704	24.470	3332	0.781	2602	2.580	0.36734	34.340	0.3650	6588	14.855	191.6	0.93	1.00
COMBUSTOR 0 42 35 200																	
62.199	58.600	4877	396.6(1748)	1.1645	24.362	3405											
62.199	35.737	4570	206.7(1620)	1.1747	24.522	3299	0.934	3083	2.577	0.37729	34.340	0.3553	6543	18.075	190.5	0.93	1.00
SONIC THROAT 43 36 200																	
62.199	63.132	4884	396.6(1751)	1.1652	24.369	3407											
62.199	35.737	4528	179.1(1602)	1.1775	24.548	3286	1.004	3299	2.571	0.37729	34.340	0.3553	6774	19.345	197.3	0.93	1.00
COMBUSTOR REGEN 44 37 10																	
62.199	58.600	4930	437.0(1771)	1.1619	24.314	3422											
62.199	37.213	4651	259.8(1654)	1.1702	24.471	3325	0.896	2978	2.585	0.37729	34.340	0.3553	6565	17.461	191.2	0.93	1.00
NOZZLE AE 45 38 4																	
87.275	58.600	4877	396.6(1730)	1.1645	24.362	3405											
87.275	1.489	2555	-698.5(825)	1.2752	24.802	2556	2.896	7403	2.577	0.06921	34.340	1.9373	8640	7.962	251.6	0.93	1.00
NOZZLE PO 46 39 4																	
87.275	58.600	4877	396.6(1730)	1.1645	24.362	3405											
87.275	0.630	2114	-858.9(665)	1.2915	24.802	2339	3.388	7926	2.577	0.03792	34.340	3.5353	9030	4.671	263.0	0.93	1.00
NOZZLE AE REGEN 47 40 4																	
87.275	58.600	4930	437.0(1771)	1.1619	24.314	3422											
87.275	1.518	2623	-673.2(850)	1.2728	24.802	2587	2.881	7453	2.585	0.06921	34.340	1.9373	8708	8.016	253.6	0.93	1.00
NOZZLE PO REGEN 48 41 4																	
87.275	58.600	4930	437.0(1771)	1.1619	24.314	3422											
87.275	0.630	2163	-841.3(682)	1.2895	24.802	2365	3.382	7998	2.585	0.03739	34.340	3.5856	9115	4.647	265.4	0.93	1.00
FICTIVE COMBUSTR 70 63 0																	
62.199	205.459	4984	396.6(1790)	1.1773	24.480	3452											
62.199	0.630	1570	-1045.9(478)	1.3181	24.802	2037	4.171	8496	2.475	0.05473	34.340	2.4498	9463	7.226	275.6	0.93	1.00
FICTIVE NOZZLE 71 64 0																	
87.275	29.384	4753	349.5(1697)	1.1606	24.347	3356											
87.275	2.046	3085	-495.8(1024)	1.2549	24.796	2786	2.334	6503	2.624	0.06921	34.340	1.9371	7956	6.995	231.7	0.93	1.00

XABS	P-IB	P-OB	PDA	QUX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.375E 00	0.000	-5.277E-01	0.000	0.000	0.000	2.470E-02	2.182E 00	3.249E-03	0.000	0.000
1.836E 01	1.375E 00	0.000	-4.573E 01	0.000	0.000	0.000	1.634E 02	2.182E 00	3.249E-03	0.000	0.000
3.070E 01	2.520E 00	0.000	-2.036E 02	0.000	0.000	0.000	5.053E 02	3.999E 00	6.047E-03	0.000	0.000
3.508E 01	4.233E 00	0.000	-4.225E 02	0.000	0.000	0.000	6.804E 02	6.718E 00	1.016E-02	0.000	0.000
3.518E 01	4.269E 00	6.045E 00	-4.897E 02	0.000	0.000	0.000	6.847E 02	6.774E 00	1.024E-02	9.594E 00	1.451E-02
3.518E 01	4.271E 00	6.022E 00	-4.898E 02	0.000	0.000	0.000	6.850E 02	6.776E 00	1.025E-02	9.556E 00	1.445E-02
3.555E 01	4.405E 00	4.632E 00	-4.980E 02	0.000	0.000	0.000	7.218E 02	6.991E 00	1.057E-02	7.351E 00	1.111E-02
3.585E 01	4.326E 00	3.500E 00	-5.105E 02	-3.143E 02	-3.143E 02	0.000	7.521E 02	6.865E 00	1.038E-02	5.555E 00	8.398E-03
3.606E 01	4.270E 00	4.845E 00	-5.193E 02	-3.181E 02	-3.181E 02	0.000	7.738E 02	6.777E 00	1.025E-02	7.689E 00	1.163E-02
3.648E 01	4.825E 00	7.520E 00	-5.327E 02	-3.259E 02	-3.259E 02	0.000	8.174E 02	7.656E 00	1.158E-02	1.193E 01	1.804E-02
3.701E 01	4.590E 00	1.090E 01	-5.469E 02	-3.760E 02	-3.362E 02	-3.976E 01	8.734E 02	7.285E 00	1.101E-02	1.729E 01	2.615E-02
3.731E 01	5.999E 00	1.280E 01	-5.557E 02	-3.946E 02	-3.423E 02	-5.232E 01	9.055E 02	9.520E 00	1.439E-02	2.031E 01	3.071E-02
3.803E 01	9.397E 00	1.630E 01	-6.087E 02	-4.398E 02	-3.578E 02	-8.202E 01	9.843E 02	1.491E 01	2.255E-02	2.587E 01	3.911E-02
3.833E 01	1.241E 01	1.775E 01	-6.350E 02	-4.591E 02	-3.649E 02	-9.424E 01	1.018E 03	1.970E 01	2.978E-02	2.817E 01	4.259E-02
3.875E 01	1.665E 01	1.865E 01	-6.795E 02	-4.877E 02	-3.763E 02	-1.114E 02	1.065E 03	2.643E 01	3.996E-02	2.959E 01	4.474E-02
3.880E 01	1.715E 01	1.875E 01	-6.843E 02	-4.911E 02	-3.778E 02	-1.134E 02	1.071E 03	2.721E 01	4.115E-02	2.976E 01	4.499E-02
3.901E 01	1.927E 01	1.893E 01	-7.035E 02	-5.062E 02	-3.843E 02	-1.219E 02	1.095E 03	3.059E 01	4.625E-02	3.004E 01	4.541E-02
3.931E 01	1.899E 01	1.917E 01	-7.264E 02	-5.284E 02	-3.944E 02	-1.340E 02	1.129E 03	3.014E 01	4.557E-02	3.043E 01	4.601E-02
3.950E 01	1.881E 01	1.428E 01	-7.384E 02	-5.431E 02	-4.014E 02	-1.416E 02	1.151E 03	2.986E 01	4.514E-02	2.266E 01	3.426E-02
3.980E 01	1.997E 01	6.625E 00	-7.630E 02	-5.668E 02	-4.133E 02	-1.534E 02	1.186E 03	3.170E 01	4.742E-02	1.051E 01	1.590E-02
4.000E 01	2.075E 01	6.425E 00	-7.845E 02	-5.833E 02	-4.220E 02	-1.612E 02	1.210E 03	3.294E 01	4.980E-02	1.020E 01	1.542E-02
4.040E 01	2.379E 01	6.028E 00	-8.284E 02	-6.171E 02	-4.406E 02	-1.766E 02	1.257E 03	3.775E 01	5.708E-02	9.566E 00	1.446E-02
4.041E 01	2.386E 01	6.018E 00	-8.294E 02	-6.180E 02	-4.410E 02	-1.769E 02	1.258E 03	3.788E 01	5.726E-02	9.551E 00	1.444E-02
4.129E 01	3.057E 01	5.140E 00	-9.407E 02	-7.016E 02	-4.872E 02	-2.145E 02	1.362E 03	4.852E 01	7.336E-02	8.157E 00	1.233E-02
4.136E 01	3.107E 01	5.075E 00	-9.495E 02	-7.084E 02	-4.909E 02	-2.175E 02	1.370E 03	4.930E 01	7.455E-02	8.054E 00	1.218E-02
4.150E 01	3.214E 01	5.787E 00	-9.687E 02	-7.231E 02	-4.990E 02	-2.241E 02	1.387E 03	5.100E 01	7.711E-02	9.185E 00	1.389E-02
4.246E 01	1.950E 01	1.063E 01	-1.045E 03	-8.276E 02	-5.580E 02	-2.697E 02	1.502E 03	3.095E 01	4.679E-02	1.688E 01	2.552E-02
4.408E 01	2.565E 01	1.881E 01	-1.079E 03	-1.012E 03	-6.575E 02	-3.545E 02	1.698E 03	4.071E 01	6.154E-02	2.985E 01	4.513E-02
4.431E 01	2.653E 01	1.960E 01	-1.084E 03	-1.038E 03	-6.710E 02	-3.669E 02	1.726E 03	4.210E 01	6.365E-02	3.110E 01	4.702E-02
4.479E 01	2.836E 01	2.125E 01	-1.095E 03	-1.088E 03	-6.988E 02	-3.888E 02	1.785E 03	4.502E 01	6.806E-02	3.373E 01	5.100E-02
4.480E 01	2.839E 01	2.128E 01	-1.095E 03	-1.088E 03	-6.992E 02	-3.890E 02	1.786E 03	4.505E 01	6.812E-02	3.377E 01	5.105E-02
4.552E 01	2.812E 01	2.374E 01	-1.098E 03	-1.151E 03	-7.401E 02	-4.108E 02	1.874E 03	4.464E 01	6.749E-02	3.767E 01	5.696E-02
4.626E 01	2.785E 01	2.775E 01	-1.070E 03	-1.209E 03	-7.824E 02	-4.267E 02	1.965E 03	4.420E 01	6.683E-02	4.404E 01	6.659E-02
4.731E 01	2.747E 01	3.344E 01	-9.885E 02	-1.292E 03	-8.430E 02	-4.490E 02	2.095E 03	4.359E 01	6.591E-02	5.307E 01	8.024E-02
4.732E 01	2.764E 01	3.349E 01	-9.878E 02	-1.293E 03	-8.435E 02	-4.492E 02	2.096E 03	4.386E 01	6.632E-02	5.315E 01	8.035E-02
4.811E 01	4.271E 01	3.898E 01	-8.965E 02	-1.368E 03	-8.896E 02	-4.786E 02	2.195E 03	6.779E 01	1.025E-01	6.186E 01	9.352E-02
4.876E 01	4.348E 01	4.348E 01	-7.706E 02	-1.450E 03	-9.277E 02	-5.220E 02	2.276E 03	6.900E 01	1.043E-01	6.900E 01	1.043E-01
4.877E 01	4.355E 01	4.355E 01	-7.683E 02	-1.451E 03	-9.283E 02	-5.228E 02	2.277E 03	6.911E 01	1.045E-01	6.911E 01	1.045E-01
4.930E 01	4.722E 01	4.722E 01	-6.429E 02	-1.531E 03	-9.595E 02	-5.719E 02	2.344E 03	7.495E 01	1.133E-01	7.495E 01	1.133E-01
5.071E 01	4.191E 01	4.191E 01	-3.134E 02	-1.794E 03	-1.044E 03	-7.506E 02	2.521E 03	6.651E 01	1.006E-01	6.651E 01	1.006E-01
5.281E 01	3.525E 01	3.525E 01	1.113E 02	-2.194E 03	-1.171E 03	-1.023E 03	2.788E 03	5.594E 01	8.458E-02	5.594E 01	8.458E-02
5.331E 01	4.435E 01	4.435E 01	2.148E 02	-2.279E 03	-1.202E 03	-1.077E 03	2.851E 03	7.039E 01	1.064E-01	7.039E 01	1.064E-01
5.405E 01	4.190E 01	4.190E 01	3.795E 02	-2.406E 03	-1.248E 03	-1.158E 03	2.946E 03	6.650E 01	1.005E-01	6.650E 01	1.005E-01
5.406E 01	4.187E 01	4.187E 01	3.816E 02	-2.407E 03	-1.248E 03	-1.159E 03	2.947E 03	6.644E 01	1.005E-01	6.644E 01	1.005E-01
5.482E 01	3.935E 01	3.935E 01	5.390E 02	-2.545E 03	-1.296E 03	-1.249E 03	3.045E 03	6.245E 01	9.442E-02	6.245E 01	9.442E-02
5.576E 01	4.161E 01	4.161E 01	7.300E 02	-2.724E 03	-1.355E 03	-1.370E 03	3.166E 03	6.603E 01	9.984E-02	6.603E 01	9.984E-02
5.623E 01	4.274E 01	4.274E 01	1.456E 03	-2.815E 03	-1.381E 03	-1.434E 03	3.208E 03	6.784E 01	1.026E-01	6.784E 01	1.026E-01
5.624E 01	4.277E 01	4.277E 01	1.459E 03	-2.817E 03	-1.381E 03	-1.436E 03	3.209E 03	6.788E 01	1.026E-01	6.788E 01	1.026E-01
5.630E 01	3.950E 01	4.290E 01	1.471E 03	-2.827E 03	-1.384E 03	-1.443E 03	3.216E 03	6.269E 01	9.478E-02	6.809E 01	1.029E-01
5.644E 01	3.950E 01	4.324E 01	1.499E 03	-2.854E 03	-1.391E 03	-1.463E 03	3.234E 03	6.269E 01	9.478E-02	6.862E 01	1.037E-01
5.652E 01	4.343E 01	4.343E 01	1.517E 03	-2.866E 03	-1.394E 03	-1.474E 03	3.244E 03	6.892E 01	1.042E-01	6.892E 01	1.042E-01
5.680E 01	4.410E 01	4.410E 01	1.574E 03	-2.920E 03	-1.408E 03	-1.512E 03	3.280E 03	6.999E 01	1.058E-01	6.999E 01	1.058E-01
5.702E 01	4.361E 01	4.361E 01	1.616E 03	-2.961E 03	-1.418E 03	-1.543E 03	3.309E 03	6.922E 01	1.046E-01	6.922E 01	1.046E-01
5.775E 01	4.205E 01	4.205E 01	1.732E 03	-3.091E 03	-1.452E 03	-1.638E 03	3.402E 03	6.674E 01	1.009E-01	6.674E 01	1.009E-01
5.877E 01	4.414E 01	4.414E 01	1.832E 03	-3.263E 03	-1.501E 03	-1.763E 03	3.532E 03	7.005E 01	1.059E-01	7.005E 01	1.059E-01
6.076E 01	4.076E 01	4.076E 01	1.842E 03	-3.589E 03	-1.599E 03	-1.990E 03	3.790E 03	6.469E 01	9.781E-02	6.469E 01	9.781E-02

READING = 0097 BLOCK = 159 TIME = 252.714 MACH 5.2 PT = 416.749 TT = 2229.9

XABS	P-IB	P-OB	PCA	QOX	Q-IB	Q-OB	CA-ALL	P-IB/P80	P-IB/P10	P-OB/P80	P-OB/P10
6.220E 01	3.574E 01	3.574E 01	1.842E 03	-3.817E 03	-1.678E 03	-2.138E 03	3.972E 03	5.672E 01	8.575E-02	5.672E 01	8.575E-02
6.466E 01	2.740E 01	2.740E 01	1.842E 03	-4.239E 03	-1.850E 03	-2.389E 03	4.289E 03	4.348E 01	6.574E-02	4.348E 01	6.574E-02
6.504E 01	2.470E 01	2.612E 01	1.842E 03	-4.307E 03	-1.880E 03	-2.427E 03	4.337E 03	3.920E 01	5.927E-02	4.146E 01	6.269E-02
6.508E 01	2.470E 01	2.599E 01	1.842E 03	-4.314E 03	-1.883E 03	-2.431E 03	4.342E 03	3.920E 01	5.927E-02	4.125E 01	6.236E-02
6.528E 01	2.326E 01	2.531E 01	1.842E 03	-4.349E 03	-1.899E 03	-2.450E 03	4.368E 03	3.692E 01	5.582E-02	4.017E 01	6.074E-02
6.694E 01	1.135E 01	1.019E 01	2.038E 03	-4.596E 03	-2.014E 03	-2.582E 03	4.583E 03	1.801E 01	2.723E-02	1.617E 01	2.445E-02
6.761E 01	8.767E 00	1.342E 00	2.198E 03	-4.679E 03	-2.051E 03	-2.628E 03	4.665E 03	1.391E 01	2.104E-02	2.131E 00	3.221E-03
6.838E 01	5.800E 00	4.026E 00	2.347E 03	-4.773E 03	-2.088E 03	-2.685E 03	4.760E 03	9.205E 00	1.392E-02	6.389E 00	9.660E-03
6.910E 01	4.977E 00	6.535E 00	2.487E 03	-4.867E 03	-2.118E 03	-2.749E 03	4.848E 03	7.699E 00	1.194E-02	1.037E 01	1.568E-02
6.971E 01	4.280E 00	5.454E 00	2.602E 03	-4.941E 03	-2.140E 03	-2.801E 03	4.922E 03	6.793E 00	1.027E-02	8.656E 00	1.309E-02
7.066E 01	3.013E 00	3.770E 00	2.732E 03	-5.027E 03	-2.172E 03	-2.855E 03	5.036E 03	4.782E 00	7.231E-03	5.983E 00	9.046E-03
7.109E 01	2.440E 00	3.488E 00	2.777E 03	-5.056E 03	-2.184E 03	-2.872E 03	5.088E 03	3.872E 00	5.855E-03	5.536E 00	8.370E-03
7.262E 01	1.862E 00	2.485E 00	2.897E 03	-5.151E 03	-2.224E 03	-2.927E 03	5.273E 03	2.955E 00	4.467E-03	3.944E 00	5.963E-03
7.277E 01	1.805E 00	2.291E 00	2.907E 03	-5.160E 03	-2.227E 03	-2.933E 03	5.290E 03	2.865E 00	4.331E-03	3.636E 00	5.497E-03
7.352E 01	2.544E 00	1.320E 00	2.973E 03	-5.207E 03	-2.242E 03	-2.965E 03	5.374E 03	4.038E 00	6.105E-03	2.095E 00	3.167E-03
7.352E 01	2.548E 00	1.315E 00	2.975E 03	-5.208E 03	-2.242E 03	-2.965E 03	5.375E 03	4.044E 00	6.114E-03	2.087E 00	3.155E-03
7.485E 01	3.855E 00	0.000	3.043E 03	-5.247E 03	-2.266E 03	-3.031E 03	5.426E 03	6.118E 00	9.250E-03	0.000	0.000
7.770E 01	2.735E 00	0.000	3.175E 03	-5.335E 03	-2.304E 03	-3.031E 03	5.525E 03	4.341E 00	6.563E-03	0.000	0.000
8.160E 01	1.925E 00	0.000	3.274E 03	-5.366E 03	-2.337E 03	-3.031E 03	5.630E 03	3.055E 00	4.619E-03	0.000	0.000
8.441E 01	2.435E 00	0.000	3.323E 03	-5.393E 03	-2.362E 03	-3.031E 03	5.684E 03	3.864E 00	5.843E-03	0.000	0.000
8.727E 01	4.910E 00	0.000	3.411E 03	-5.436E 03	-2.405E 03	-3.031E 03	5.707E 03	7.792E 00	1.178E-02	0.000	0.000
8.727E 01	4.915E 00	0.000	3.411E 03	-5.436E 03	-2.405E 03	-3.031E 03	5.707E 03	7.801E 00	1.179E-02	0.000	0.000

READING = 0097 BLOCK = 159 TIME = 252.714 MACH 5.2 PI = 416.749 TT = 2229.9

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.182E 02	1.182E 02	2.174E-03	4.862E-02
4.041E 01	1.693E-01	1.184E 02	2.187E-03	5.176E-02
4.129E 01	1.486E 01	1.332E 02	2.300E-03	5.529E-02
4.136E 01	1.095E 00	1.343E 02	2.308E-03	5.562E-02
4.150E 01	2.378E 00	1.367E 02	2.327E-03	5.619E-02
4.246E 01	1.599E 01	1.527E 02	2.400E-03	5.705E-02
4.408E 01	2.622E 01	1.789E 02	2.433E-03	5.669E-02
4.431E 01	3.656E 00	1.826E 02	2.441E-03	5.699E-02
4.479E 01	7.648E 00	1.902E 02	2.458E-03	5.716E-02
4.480E 01	9.693E-02	1.903E 02	2.458E-03	5.718E-02
4.552E 01	1.125E 01	2.016E 02	2.473E-03	5.642E-02
4.626E 01	1.135E 01	2.129E 02	2.453E-03	5.357E-02
4.731E 01	1.547E 01	2.284E 02	2.385E-03	4.604E-02
4.732E 01	1.137E-01	2.285E 02	2.384E-03	4.800E-02
4.811E 01	1.104E 01	2.395E 02	2.287E-03	4.253E-02
4.876E 01	8.679E 00	2.482E 02	3.163E-03	5.310E-02
4.877E 01	1.154E-01	2.483E 02	2.774E-03	6.258E-02
4.930E 01	5.355E 00	2.537E 02	2.767E-03	6.237E-02
5.071E 01	1.277E 01	2.665E 02	2.698E-03	5.815E-02
5.281E 01	1.796E 01	2.844E 02	2.778E-03	5.058E-02
5.331E 01	3.930E 00	2.883E 02	3.083E-03	4.584E-02
5.405E 01	5.409E 00	2.938E 02	3.185E-03	4.384E-02
5.406E 01	7.266E-02	2.938E 02	3.058E-03	4.631E-02
5.482E 01	5.398E 00	2.992E 02	3.000E-03	4.626E-02
5.576E 01	6.356E 00	3.056E 02	3.088E-03	4.354E-02
5.623E 01	1.895E 00	3.075E 02	3.177E-03	3.909E-02
5.624E 01	5.006E-02	3.075E 02	3.222E-03	3.831E-02
5.630E 01	2.852E-01	3.078E 02	3.194E-03	3.916E-02
5.644E 01	7.378E-01	3.085E 02	3.238E-03	3.832E-02
5.652E 01	4.283E-01	3.090E 02	3.438E-03	3.511E-02
5.680E 01	1.488E 00	3.105E 02	3.433E-03	3.513E-02
5.702E 01	1.208E 00	3.117E 02	3.413E-03	3.575E-02
5.775E 01	4.019E 00	3.157E 02	3.371E-03	3.662E-02
5.877E 01	5.607E 00	3.213E 02	3.382E-03	3.622E-02
6.078E 01	1.170E 01	3.330E 02	3.311E-03	3.891E-02
6.220E 01	9.837E 00	3.428E 02	3.248E-03	4.042E-02
6.466E 01	2.067E 01	3.857E 02	3.271E-03	3.976E-02
6.504E 01	3.517E 00	3.893E 02	3.257E-03	3.878E-02
6.508E 01	3.784E-01	3.896E 02	3.257E-03	3.874E-02
6.528E 01	1.900E 00	3.915E 02	3.252E-03	3.815E-02
6.694E 01	1.514E 01	4.067E 02	3.137E-03	2.467E-02
6.761E 01	4.608E 00	4.113E 02	3.035E-03	1.475E-02
6.838E 01	4.423E 00	4.157E 02	3.025E-03	1.442E-02
6.910E 01	4.232E 00	4.199E 02	3.038E-03	1.610E-02
6.971E 01	3.553E 00	4.235E 02	3.020E-03	1.430E-02
7.066E 01	4.789E 00	4.283E 02	2.978E-03	1.100E-02
7.109E 01	1.891E 00	4.302E 02	2.959E-03	9.941E-03
7.262E 01	5.882E 00	4.361E 02	2.914E-03	7.846E-03
7.277E 01	4.900E-01	4.366E 02	2.906E-03	7.496E-03
7.352E 01	2.315E 00	4.389E 02	2.895E-03	7.159E-03
7.352E 01	4.353E-03	4.389E 02	2.895E-03	7.157E-03
7.485E 01	1.740E 00	4.406E 02	2.978E-03	1.201E-02
7.770E 01	3.600E 00	4.442E 02	2.921E-03	9.259E-03
8.160E 01	3.118E 00	4.473E 02	2.859E-03	7.041E-03
8.441E 01	1.554E 00	4.489E 02	2.877E-03	8.389E-03
8.727E 01	8.564E-01	4.497E 02	2.958E-03	1.405E-02

READING = 0097 BLOCK = 159 TIME = 252.714 MACH 5.2 PI = 416.749 TI = 2229.4

X	DDRAG	CDRAG	CF	HC
8.727E 01	0.000	4.497E 02	2.958E-03	1.406E-02

C-6

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RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2676.	(LBF)
MEASURED THRUST	2978.	(LBF)
CALCULATED SPECIFIC IMPULSE	2943.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3275.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.9097	
MEASURED THRUST COEFFICIENT	1.0121	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	8019.	(LBF)
NET THRUST	2740.	(LBF)
SPECIFIC IMPULSE	3013.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.9311	

MOMENTUM AND FORCES

INLET FRICTION DRAG	118.2	(LBF)
INLET MOMENTUM CHANGE	-946.6	(LBF)
COMBUSTOR FRICTION DRAG	284.6	(LBF)
COMBUSTOR STRUT DRAG	143.40	(LBF)
COMBUSTOR MOMENTUM CHANGE	2209.	(LBF)
NOZZLE FRICTION DRAG	84.66	(LBF)
NOZZLE STRUT DRAG	70.71	(LBF)
NOZZLE MOMENTUM CHANGE	1814.	(LBF)
NOZZLE PRESSURE INTEGRAL	1569.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1471.	(LBF)
TOTAL STRUT DRAG	214.11	(LBF)
CAVITY FORCE	-1293.	(LBF)
CALCULATED LOAD CELL FORCE	-88.	(LBF)
MEASURED LOAD CELL FORCE	213.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-132.6, -145.3, 0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2989	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.183	(IN)
NOZZLE SHROUD TRAILING EDGE	73.523	(IN)
NOZZLE PLUG TRAILING EDGE	87.275	(IN)
STRUT LEADING EDGE	56.439	(IN)
STRUT TRAILING EDGE	65.039	(IN)
COMBUSTOR EXIT	62.199	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8643	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2870	
DELTA PT2	0.1396	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4930	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2920	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9144	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9210	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9266	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8900	
ENTHALPY AT PO - SUPERSONIC	-20.25	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-2.62	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0272
EQUIVALENCE RATIO	0.933
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.2852
COMBUSTOR EFFECTIVENESS	0.9154
INJECTOR DISCHARGE COEFFICIENTS	0.7347, 0.7344, 0.6874,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9209
NOZZLE COEFFICIENT - CT	0.8464
PROCESS EFFICIENCY	0.8385
KINETIC ENERGY EFFICIENCY	0.8224

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.284	
1C	44.300	
2A	48.759	D
2C	46.250	
3A	54.049	E
3B	56.234	E
4	44.784	

Reading 97

t = 271.61 sec.

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READING = 0097  BLOCK = 160  TIME = 271.614  MACH  5.2  PT = 416.999  TT = 2223.6
                                      RAMJET PERFORMANCE

                                 S U M M A R Y   R E P O R T

              P        T       H            GAMMA  MOLWT SONV  MACH  VEL    S      W/A       W     A/AC    MOMTM    Q      IVAC  PHI  ETAC
WIND TUNNEL            1    0   4
 0.000    416.999 2224   442.7( 572) 1.3188 28.837 2249
 0.000      0.586  374   -39.3(  90) 1.3983 28.836  950
                                                          5.170 4911 1.780 0.14359 31.767 0.8643   4982 10.959 156.7
SPIKE TIP NS           2    0   6
 0.600     21.625 2224   442.7( 572) 1.3189 28.836 2249
 0.600     19.657 2173   428.2( 557) 1.3206 28.836 2224 0.382  850 1.984 0.14359 31.767 0.8643   5192  1.898 163.3
WIND TUNNEL            3    0   0
 0.000    416.999 2224   442.7( 572) 1.3188 28.837 2249
 0.000      0.632  382   -37.3(  92) 1.3984 28.836  960 5.105 4901 1.780 0.15118 33.466 0.8643   5238 11.514 156.5
SPIKE TIP NS           4    0   0
 0.600     21.625 2224   442.7( 572) 1.3189 28.836 2249
 0.600     19.413 2166   426.4( 555) 1.3208 28.836 2221 0.407  904 1.984 0.15118 33.466 0.8643   5238  2.124 156.6
INLET THROAT           5    0   4
40.400    203.119 2158   424.2( 553) 1.3211 28.837 2217
40.400     19.384 1184   160.1( 290) 1.3681 28.836 1671 2.175 3635 1.821 1.11079 33.466 0.1117   4336 66.061 129.5
INLET UPNRSK           6    0   3
40.400    203.119 2158   424.2( 553) 1.3211 28.837 2217
40.400     17.973 1160   154.0( 283) 1.3696 28.836 1685 2.222 3677 1.821 1.06317 33.466 0.1229   4390 60.745 131.2
INLET DNNRSK           7    0   4
40.400    121.669 2158   424.2( 553) 1.3211 28.836 2217
40.400    101.024 2063   397.1( 526) 1.3245 28.836 2170 0.536 1163 1.857 1.06317 33.466 0.1229   4390 19.220 131.2
COMBUSTOR          0   8    1   4
40.410    203.166 2158   424.1( 553) 1.3211 28.837 2217
40.410     21.196 1212   167.5( 297) 1.3663 28.836 1690 2.121 3584 1.821 1.16934 33.466 0.1117   4334 65.124 129.5
COMBUSTOR          0   9    2   4
41.294    169.085 2149   421.5( 551) 1.3214 28.836 2213
41.294     24.572 1318   194.8( 324) 1.3597 28.836 1758 1.916 3368 1.833 1.17183 33.466 0.1115   4205 61.337 125.7
COMBUSTOR          0  10    3   4
41.359    167.126 2148   421.3( 550) 1.3214 28.836 2212
41.359     24.888 1326   196.9( 326) 1.3592 28.836 1763 1.901 3351 1.834 1.17367 33.466 0.1113   4195 61.120 125.4
COMBUSTOR          0  11    4   4
41.500    162.465 2147   420.9( 550) 1.3215 28.836 2212
41.500     25.502 1343   201.5( 331) 1.3582 28.836 1774 1.868 3313 1.835 1.17366 33.466 0.1113   4173 60.431 124.7
COMBUSTOR          0  12    5   5
42.460    144.349 2135   417.6( 547) 1.3219 28.837 2206
42.460     27.858 1410   219.0( 348) 1.3542 28.836 1814 1.737 3152 1.842 1.16208 33.466 0.1124   4061 56.928 121.9
COMBUSTOR          0  13    6   4
44.079    132.453 2115   411.8( 541) 1.3226 28.836 2196
44.079     28.156 1431   224.5( 354) 1.3529 28.836 1827 1.675 3060 1.845 1.12356 33.466 0.1163   4022 53.438 120.2
COMBUSTOR          0  14    7   4
44.310    131.213 2112   410.9( 540) 1.3227 28.836 2194
44.310     28.295 1434   225.4( 355) 1.3527 28.836 1829 1.666 3047 1.845 1.12148 33.466 0.1165   4013 53.100 119.9
COMBUSTOR          0  15    8   4
44.794    128.507 2106   409.4( 539) 1.3229 28.836 2192
44.794     28.609 1442   227.5( 357) 1.3523 28.836 1834
                                                          1.645 3017 1.846 1.11652 33.466 0.1170   3995 52.342 119.4
COMBUSTOR          0  16    9   4
44.800    128.456 2106   409.4( 539) 1.3229 28.836 2192
44.800     28.622 1443   227.6( 357) 1.3523 28.836 1834 1.645 3016 1.846 1.11655 33.466 0.1170   3995 52.330 119.4
COMBUSTOR          0  17   10   4
45.519    125.075 2099   407.4( 537) 1.3232 28.836 2188
45.519     28.229 1443   227.5( 357) 1.3523 28.836 1834 1.636 3000 1.847 1.09561 33.466 0.1193   3983 51.083 119.0
COMBUSTOR          0  18   11   4
46.260    122.835 2093   405.7( 535) 1.3234 28.836 2185
46.260     26.321 1419   221.2( 351) 1.3537 28.836 1820 1.670 3038 1.847 1.05181 33.466 0.1242   3998 49.660 119.5
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	P	T	H	GAMMA	MOL-WT	SONV	MACH	VEL	S	W/A	W	A/AC	PUMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.310	121.501	2085	403.3(532)	1.3237	26.836	2181											
47.310	22.858	1365	207.1(337)	1.3568	26.836	1787	1.753	3133	1.847	0.97886	33.466	0.1335	4040	47.655	120.7		
COMBUSTOR	0	20	13 4														
47.319	121.508	2085	403.3(532)	1.3237	28.836	2181											
47.319	22.835	1365	207.0(336)	1.3569	28.836	1787	1.754	3133	1.847	0.97842	33.466	0.1335	4040	47.645	120.7		
COMBUSTOR	0	21	14 3														
48.110	122.954	2078	401.4(531)	1.3239	28.836	2178											
48.110	19.605	1302	190.7(320)	1.3607	28.836	1748	1.858	3247	1.845	0.91224	33.466	0.1432	4096	46.029	122.4		
COMBUSTOR	0	22	15 21														
48.759	82.863	2142	434.7(628)	1.3259	25.048	2374											
48.759	26.127	1601	264.3(458)	1.3477	25.048	2070	1.411	2920	2.110	0.85197	33.867	0.1552	4112	36.656	121.4	0.42	0.07
COMBUSTOR	0	23	16 21														
48.769	89.687	2018	434.6(590)	1.3317	24.932	2315											
48.769	26.161	1473	264.4(420)	1.3555	24.932	1995	1.463	2918	2.087	0.85086	33.867	0.1554	4113	36.588	121.4	0.42	0.01
COMBUSTOR	0	24	17 4														
49.299	83.286	2129	433.3(625)	1.3264	25.040	2368											
49.299	27.937	1617	271.8(463)	1.3470	25.040	2080	1.367	2843	2.108	0.79577	33.867	0.1662	4181	35.157	123.5	0.42	0.07
COMBUSTOR	0	25	18 5														
50.709	70.361	2557	429.3(758)	1.3066	25.468	2554											
50.709	39.094	2223	319.8(649)	1.3160	25.468	2392	0.978	2340	2.167	0.67820	33.867	0.1950	4415	24.664	130.4	0.42	0.30
COMBUSTOR	0	26	19 5														
52.809	63.886	3022	420.9(909)	1.2850	25.857	2732											
52.809	40.450	2727	320.1(810)	1.2949	25.858	2605	0.862	2247	2.218	0.55772	33.980	0.2379	4837	19.472	142.4	0.43	0.55
COMBUSTOR	0	27	20 4														
53.309	63.033	3114	419.3(938)	1.2806	25.961	2763											
53.309	41.733	2842	325.4(847)	1.2898	25.962	2649	0.818	2168	2.225	0.53493	33.980	0.2480	4940	18.022	145.4	0.43	0.60
COMBUSTOR	0	28	21 4														
54.049	60.910	3077	431.0(975)	1.2839	24.567	2828											
54.049	40.124	2803	331.8(878)	1.2931	24.568	2708	0.823	2228	2.323	0.50714	34.150	0.2629	5066	17.559	148.4	0.60	0.45
COMBUSTOR	0	29	22 2														
54.059	60.890	3080	430.9(976)	1.2838	24.570	2828											
54.059	40.102	2805	331.6(879)	1.2930	24.571	2709	0.823	2229	2.323	0.50676	34.150	0.2631	5068	17.556	148.4	0.60	0.45
COMBUSTOR	0	30	23 4														
54.819	59.160	3299	428.3(1051)	1.2731	24.804	2902											
54.819	38.450	3004	319.6(945)	1.2833	24.807	2780	0.839	2332	2.340	0.47921	34.150	0.2782	5216	17.370	152.7	0.60	0.54
COMBUSTOR	0	31	24 4														
55.760	58.102	3448	424.6(1101)	1.2655	24.973	2947											
55.760	40.185	3188	327.3(1008)	1.2748	24.977	2844	0.776	2207	2.349	0.44948	34.150	0.2966	5395	15.413	158.0	0.60	0.60
COMBUSTOR	0	32	25 4														
56.234	54.286	3882	433.7(1313)	1.2425	24.204	3148											
56.234	41.058	3675	347.1(1233)	1.2511	24.215	3073	0.677	2082	2.474	0.36449	34.319	0.3676	6067	11.794	177.4	0.77	0.65
COMBUSTOR	0	33	26 2														
56.244	54.289	3884	433.7(1313)	1.2424	24.206	3148											
56.244	41.077	3677	347.2(1234)	1.2510	24.216	3073	0.677	2080	2.474	0.36423	34.319	0.3679	6069	11.776	177.4	0.77	0.65
COMBUSTOR	0	34	27 4														
56.299	53.746	4037	433.4(1369)	1.2326	24.374	3186											
56.299	39.539	3809	335.3(1281)	1.2426	24.391	3106	0.713	2216	2.482	0.36307	34.319	0.3691	6101	12.502	177.8	0.77	0.71
COMBUSTOR	0	35	28 3														
56.439	53.692	4058	432.9(1377)	1.2312	24.396	3191											
56.439	39.668	3832	335.7(1289)	1.2411	24.415	3112	0.709	2205	2.483	0.36065	34.319	0.3715	6127	12.361	178.5	0.77	0.72
COMBUSTOR	0	36	29 21														
56.519	52.792	4706	432.5(1615)	1.1810	25.141	3315											
56.519	41.584	4545	345.4(1551)	1.1879	25.200	3264	0.640	2088	2.499	0.36463	34.319	0.3675	6141	11.834	179.0	0.77	1.00
COMBUSTOR	0	37	30 21														
56.799	53.267	4704	431.4(1614)	1.1813	25.143	3315											
56.799	42.100	4545	345.5(1551)	1.1880	25.201	3264	0.635	2074	2.498	0.36336	34.319	0.3686	6188	11.709	180.3	0.77	1.00

READING = 0097 BLOCK = 180 TIME = 271.614 MACH 5.2 PI = 416.999 TT = 2223.6

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMIM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
57.025	53.509	4703	430.4(1614)	1.1814	25.144	3315											
57.025	41.565	4532	338.4(1546)	1.1887	25.206	3260	0.658	2147	2.498	0.36274	34.319	0.3694	6222	12.101	181.3	0.77	1.00
COMBUSTOR	0	39	32 21														
57.749	53.691	4698	427.3(1612)	1.1818	25.147	3313											
57.749	39.850	4496	319.1(1531)	1.1906	25.218	3249	0.716	2326	2.497	0.35705	34.319	0.3753	6312	12.907	183.9	0.77	1.00
COMBUSTOR	0	40	33 21														
58.769	54.413	4692	422.8(1609)	1.1824	25.152	3311											
58.769	42.000	4516	328.8(1539)	1.1900	25.214	3255	0.666	2169	2.495	0.35478	34.319	0.3777	6377	11.960	185.6	0.77	1.00
COMBUSTOR	0	41	34 21														
60.779	55.420	4678	413.8(1603)	1.1836	25.161	3307											
60.779	38.775	4434	285.5(1507)	1.1945	25.241	3230	0.784	2534	2.491	0.36712	34.319	0.3650	6327	14.455	184.4	0.77	1.00
COMBUSTOR	0	42	35 200														
62.199	56.335	4668	407.2(1599)	1.1844	25.168	3305											
62.199	33.675	4314	225.1(1459)	1.2009	25.275	3192	0.945	3018	2.489	0.37707	34.319	0.3553	6264	17.686	183.1	0.77	1.00
SONIC THROAT		43	36 200														
62.199	60.047	4671	407.2(1601)	1.1852	25.172	3307											
62.199	33.675	4272	203.5(1443)	1.2038	25.287	3180	1.004	3192	2.484	0.37707	34.319	0.3553	6470	18.707	188.5	0.77	1.00
COMBUSTOR REGEN		44	37 6														
62.199	56.335	4730	444.9(1624)	1.1805	25.134	3323											
62.199	36.334	4432	286.3(1506)	1.1936	25.238	3228	0.872	2817	2.497	0.37707	34.319	0.3553	6311	16.505	183.9	0.77	1.00
NOZZLE AE		45	38 4														
87.275	56.335	4668	407.2(1586)	1.1844	25.168	3305											
87.275	1.356	2276	-590.4(700)	1.2892	25.397	2397	2.948	7065	2.489	0.06917	34.319	1.9372	8209	7.595	239.2	0.77	1.00
NOZZLE PO		46	39 4														
87.275	56.335	4668	407.2(1586)	1.1844	25.168	3305											
87.275	0.632	1912	-715.2(576)	1.3043	25.397	2209	3.392	7494	2.489	0.04072	34.319	3.2909	6527	4.742	248.5	0.77	1.00
NOZZLE AE REGEN		47	40 4														
87.275	56.335	4730	444.9(1624)	1.1805	25.134	3323											
87.275	1.383	2339	-568.4(722)	1.2868	25.397	2428	2.933	7121	2.497	0.06917	34.319	1.9372	8261	7.654	241.3	0.77	1.00
NOZZLE PO REGEN		48	41 4														
87.275	56.335	4730	444.9(1624)	1.1805	25.134	3323											
87.275	0.632	1958	-699.8(591)	1.3022	25.397	2234	3.388	7568	2.497	0.04015	34.319	3.3374	8613	4.722	251.0	0.77	1.00
FICTIVE COMBUSTR		70	63 0														
62.199	203.119	4733	407.2(1624)	1.1983	25.241	3342											
62.199	0.632	1400	-881.6(409)	1.3321	25.397	1910	4.203	8031	2.388	0.05959	34.319	2.8486	8930	7.437	260.2	0.77	1.00
FICTIVE NOZZLE		71	64 0														
87.275	30.389	4552	359.5(1554)	1.1826	25.169	3261											
87.275	1.793	2696	-440.8(849)	1.2739	25.396	2593	2.440	6328	2.527	0.06917	34.319	1.9371	7640	6.803	222.6	0.77	1.00

XABB	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.981E-01	1.385E 00	0.000	-5.289E-01	0.000	0.000	0.000	2.470E-02	2.192E 00	3.321E-03	0.000	0.000
1.836E 01	1.385E 00	0.000	-4.606E 01	0.000	0.000	0.000	1.634E 02	2.192E 00	3.321E-03	0.000	0.000
3.070E 01	2.530E 00	0.000	-2.048E 02	0.000	0.000	0.000	5.053E 02	4.004E 00	6.067E-03	0.000	0.000
3.508E 01	4.240E 00	0.000	-4.241E 02	0.000	0.000	0.000	6.804E 02	6.710E 00	1.017E-02	0.000	0.000
3.518E 01	4.276E 00	6.049E 00	-4.914E 02	0.000	0.000	0.000	6.847E 02	6.767E 00	1.025E-02	9.572E 00	1.451E-02
3.518E 01	4.278E 00	6.026E 00	-4.915E 02	0.000	0.000	0.000	6.850E 02	6.770E 00	1.026E-02	9.536E 00	1.445E-02
3.555E 01	4.415E 00	4.620E 00	-4.998E 02	0.000	0.000	0.000	7.218E 02	6.987E 00	1.059E-02	7.311E 00	1.108E-02
3.585E 01	4.330E 00	3.475E 00	-5.124E 02	-2.966E 02	-2.968E 02	0.000	7.521E 02	6.852E 00	1.038E-02	5.499E 00	8.333E-03
3.606E 01	4.270E 00	4.823E 00	-5.213E 02	-3.003E 02	-3.003E 02	0.000	7.738E 02	6.757E 00	1.024E-02	7.633E 00	1.157E-02
3.648E 01	4.830E 00	7.506E 00	-5.348E 02	-3.077E 02	-3.077E 02	0.000	8.174E 02	7.643E 00	1.158E-02	1.188E 01	1.800E-02
3.701E 01	4.620E 00	1.089E 01	-5.492E 02	-3.637E 02	-3.175E 02	-4.620E 01	8.734E 02	7.311E 00	1.108E-02	1.723E 01	2.612E-02
3.731E 01	6.042E 00	1.280E 01	-5.583E 02	-3.840E 02	-3.232E 02	-6.080E 01	9.055E 02	9.561E 00	1.449E-02	2.026E 01	3.070E-02
3.803E 01	9.472E 00	1.631E 01	-6.121E 02	-4.331E 02	-3.378E 02	-9.531E 01	9.843E 02	1.499E 01	2.272E-02	2.581E 01	3.911E-02
3.833E 01	1.246E 01	1.776E 01	-6.387E 02	-4.540E 02	-3.445E 02	-1.095E 02	1.018E 03	1.972E 01	2.988E-02	2.811E 01	4.260E-02
3.875E 01	1.667E 01	1.865E 01	-6.834E 02	-4.846E 02	-3.552E 02	-1.295E 02	1.065E 03	2.637E 01	3.996E-02	2.951E 01	4.472E-02
3.880E 01	1.715E 01	1.875E 01	-6.882E 02	-4.883E 02	-3.565E 02	-1.318E 02	1.071E 03	2.715E 01	4.114E-02	2.967E 01	4.496E-02
3.901E 01	1.926E 01	1.894E 01	-7.073E 02	-5.043E 02	-3.626E 02	-1.417E 02	1.095E 03	3.048E 01	4.619E-02	2.997E 01	4.542E-02
3.931E 01	1.900E 01	1.921E 01	-7.302E 02	-5.277E 02	-3.719E 02	-1.557E 02	1.129E 03	3.007E 01	4.557E-02	3.040E 01	4.607E-02
3.950E 01	1.884E 01	1.368E 01	-7.426E 02	-5.431E 02	-3.784E 02	-1.646E 02	1.151E 03	2.981E 01	4.517E-02	2.165E 01	3.280E-02
3.980E 01	1.999E 01	5.025E 00	-7.692E 02	-5.678E 02	-3.894E 02	-1.784E 02	1.186E 03	3.164E 01	4.794E-02	7.952E 00	1.205E-02
4.000E 01	2.077E 01	5.034E 00	-7.925E 02	-5.849E 02	-3.974E 02	-1.875E 02	1.210E 03	3.287E 01	4.981E-02	7.967E 00	1.207E-02
4.040E 01	2.384E 01	5.053E 00	-8.393E 02	-6.197E 02	-4.144E 02	-2.053E 02	1.257E 03	3.773E 01	5.717E-02	7.997E 00	1.212E-02
4.041E 01	2.392E 01	5.054E 00	-8.403E 02	-6.206E 02	-4.149E 02	-2.057E 02	1.258E 03	3.785E 01	5.736E-02	7.998E 00	1.212E-02
4.129E 01	3.070E 01	5.095E 00	-9.546E 02	-7.077E 02	-4.573E 02	-2.505E 02	1.362E 03	4.859E 01	7.363E-02	8.063E 00	1.222E-02
4.136E 01	3.120E 01	5.098E 00	-9.635E 02	-7.148E 02	-4.607E 02	-2.542E 02	1.370E 03	4.938E 01	7.483E-02	8.068E 00	1.223E-02
4.150E 01	3.229E 01	5.813E 00	-9.828E 02	-7.304E 02	-4.682E 02	-2.622E 02	1.387E 03	5.109E 01	7.743E-02	9.200E 00	1.394E-02
4.246E 01	1.950E 01	1.068E 01	-1.059E 03	-8.406E 02	-5.224E 02	-3.182E 02	1.502E 03	3.086E 01	4.676E-02	1.690E 01	2.561E-02
4.408E 01	2.536E 01	1.888E 01	-1.092E 03	-1.036E 03	-6.141E 02	-4.222E 02	1.698E 03	4.014E 01	6.082E-02	2.988E 01	4.528E-02
4.431E 01	2.620E 01	1.946E 01	-1.097E 03	-1.064E 03	-6.266E 02	-4.373E 02	1.726E 03	4.146E 01	6.283E-02	3.079E 01	4.666E-02
4.479E 01	2.795E 01	2.066E 01	-1.108E 03	-1.116E 03	-6.523E 02	-4.637E 02	1.785E 03	4.423E 01	6.703E-02	3.269E 01	4.954E-02
4.480E 01	2.797E 01	2.067E 01	-1.108E 03	-1.117E 03	-6.526E 02	-4.640E 02	1.786E 03	4.427E 01	6.709E-02	3.272E 01	4.958E-02
4.552E 01	2.490E 01	2.246E 01	-1.108E 03	-1.180E 03	-6.902E 02	-4.900E 02	1.874E 03	3.940E 01	5.971E-02	3.555E 01	5.387E-02
4.626E 01	2.173E 01	2.198E 01	-1.083E 03	-1.238E 03	-7.290E 02	-5.087E 02	1.965E 03	3.438E 01	5.210E-02	3.479E 01	5.272E-02
4.731E 01	1.723E 01	2.131E 01	-1.025E 03	-1.319E 03	-7.843E 02	-5.349E 02	2.095E 03	2.727E 01	4.132E-02	3.372E 01	5.109E-02
4.732E 01	1.720E 01	2.130E 01	-1.024E 03	-1.320E 03	-7.848E 02	-5.351E 02	2.096E 03	2.721E 01	4.124E-02	3.371E 01	5.108E-02
4.811E 01	1.410E 01	2.395E 01	-9.572E 02	-1.383E 03	-8.267E 02	-5.559E 02	2.195E 03	2.231E 01	3.381E-02	3.790E 01	5.744E-02
4.876E 01	2.613E 01	2.613E 01	-8.775E 02	-1.436E 03	-8.612E 02	-5.746E 02	2.276E 03	4.135E 01	6.266E-02	4.135E 01	6.266E-02
4.877E 01	2.616E 01	2.616E 01	-8.762E 02	-1.437E 03	-8.617E 02	-5.749E 02	2.277E 03	4.140E 01	6.274E-02	4.140E 01	6.274E-02
4.930E 01	2.794E 01	2.794E 01	-8.014E 02	-1.481E 03	-8.900E 02	-5.914E 02	2.344E 03	4.421E 01	6.700E-02	4.421E 01	6.700E-02
5.071E 01	3.909E 01	3.909E 01	-5.536E 02	-1.618E 03	-9.655E 02	-6.521E 02	2.521E 03	6.187E 01	9.375E-02	6.187E 01	9.375E-02
5.281E 01	4.045E 01	4.045E 01	-1.157E 02	-1.852E 03	-1.079E 03	-7.730E 02	2.788E 03	6.401E 01	9.700E-02	6.401E 01	9.700E-02
5.331E 01	4.173E 01	4.173E 01	-8.915E 00	-1.907E 03	-1.106E 03	-8.001E 02	2.851E 03	6.604E 01	1.001E-01	6.604E 01	1.001E-01
5.405E 01	4.012E 01	4.012E 01	1.474E 02	-1.986E 03	-1.147E 03	-8.395E 02	2.946E 03	6.350E 01	9.622E-02	6.350E 01	9.622E-02
5.406E 01	4.010E 01	4.010E 01	1.494E 02	-1.987E 03	-1.147E 03	-8.401E 02	2.947E 03	6.346E 01	9.617E-02	6.346E 01	9.617E-02
5.482E 01	3.845E 01	3.845E 01	3.017E 02	-2.078E 03	-1.189E 03	-8.894E 02	3.045E 03	6.085E 01	9.221E-02	6.085E 01	9.221E-02
5.576E 01	4.018E 01	4.018E 01	4.872E 02	-2.204E 03	-1.241E 03	-9.630E 02	3.166E 03	6.359E 01	9.637E-02	6.359E 01	9.637E-02
5.623E 01	4.106E 01	4.106E 01	1.181E 03	-2.269E 03	-1.264E 03	-1.005E 03	3.208E 03	6.497E 01	9.846E-02	6.497E 01	9.846E-02
5.624E 01	4.108E 01	4.108E 01	1.184E 03	-2.271E 03	-1.264E 03	-1.006E 03	3.209E 03	6.500E 01	9.851E-02	6.500E 01	9.851E-02
5.630E 01	3.790E 01	4.118E 01	1.195E 03	-2.278E 03	-1.267E 03	-1.011E 03	3.216E 03	5.998E 01	9.089E-02	6.516E 01	9.875E-02
5.644E 01	3.790E 01	4.144E 01	1.222E 03	-2.297E 03	-1.272E 03	-1.025E 03	3.234E 03	5.998E 01	9.089E-02	6.557E 01	9.937E-02
5.652E 01	4.158E 01	4.158E 01	1.239E 03	-2.308E 03	-1.276E 03	-1.033E 03	3.244E 03	6.581E 01	9.972E-02	6.581E 01	9.972E-02
5.680E 01	4.210E 01	4.210E 01	1.293E 03	-2.348E 03	-1.287E 03	-1.061E 03	3.280E 03	6.662E 01	1.010E-01	6.662E 01	1.010E-01
5.702E 01	4.156E 01	4.156E 01	1.334E 03	-2.381E 03	-1.297E 03	-1.084E 03	3.309E 03	6.578E 01	9.968E-02	6.578E 01	9.968E-02
5.775E 01	3.985E 01	3.985E 01	1.444E 03	-2.489E 03	-1.327E 03	-1.163E 03	3.402E 03	6.306E 01	9.556E-02	6.306E 01	9.556E-02
5.877E 01	4.200E 01	4.200E 01	1.539E 03	-2.642E 03	-1.369E 03	-1.274E 03	3.532E 03	6.646E 01	1.007E-01	6.646E 01	1.007E-01
6.078E 01	3.877E 01	3.877E 01	1.549E 03	-2.954E 03	-1.454E 03	-1.500E 03	3.790E 03	6.136E 01	9.299E-02	6.136E 01	9.299E-02

READING = 0097 BLOCK = 180 TIME = 271.614 MACH 5.2 PT = 416.999 TT = 2223.6

XABS	P-IB	P-OB	PDA	QUX	Q-IR	Q-OB	CAWALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.220E 01	3.367E 01	3.367E 01	1.549E 03	-3.179E 03	-1.523E 03	-1.657E 03	3.972E 03	5.329E 01	8.076E-02	5.329E 01	8.076E-02
6.466E 01	2.611E 01	2.611E 01	1.549E 03	-3.598E 03	-1.673E 03	-1.924E 03	4.289E 03	4.133E 01	6.263E-02	4.133E 01	6.263E-02
6.504E 01	2.347E 01	2.496E 01	1.549E 03	-3.665E 03	-1.700E 03	-1.966E 03	4.337E 03	3.715E 01	5.630E-02	3.950E 01	5.986E-02
6.508E 01	2.347E 01	2.484E 01	1.549E 03	-3.673E 03	-1.703E 03	-1.970E 03	4.342E 03	3.715E 01	5.630E-02	3.931E 01	5.957E-02
6.528E 01	2.213E 01	2.422E 01	1.549E 03	-3.707E 03	-1.717E 03	-1.990E 03	4.368E 03	3.502E 01	5.307E-02	3.834E 01	5.809E-02
6.694E 01	1.096E 01	9.875E 00	1.736E 03	-3.951E 03	-1.816E 03	-2.135E 03	4.583E 03	1.735E 01	2.629E-02	1.563E 01	2.368E-02
6.761E 01	8.351E 00	1.312E 00	1.891E 03	-4.035E 03	-1.848E 03	-2.187E 03	4.665E 03	1.322E 01	2.003E-02	2.077E 00	3.147E-03
6.838E 01	5.350E 00	3.737E 00	2.031E 03	-4.132E 03	-1.878E 03	-2.253E 03	4.760E 03	8.466E 00	1.283E-02	5.914E 00	8.963E-03
6.910E 01	4.673E 00	6.005E 00	2.161E 03	-4.231E 03	-1.903E 03	-2.328E 03	4.848E 03	7.395E 00	1.121E-02	9.503E 00	1.440E-02
6.971E 01	4.100E 00	5.127E 00	2.268E 03	-4.311E 03	-1.923E 03	-2.388E 03	4.922E 03	6.488E 00	9.832E-03	8.114E 00	1.230E-02
7.066E 01	2.950E 00	3.760E 00	2.394E 03	-4.399E 03	-1.950E 03	-2.450E 03	5.036E 03	4.669E 00	7.075E-03	5.950E 00	9.017E-03
7.109E 01	2.430E 00	3.453E 00	2.438E 03	-4.429E 03	-1.961E 03	-2.468E 03	5.088E 03	3.845E 00	5.827E-03	5.464E 00	8.280E-03
7.262E 01	1.847E 00	2.360E 00	2.557E 03	-4.528E 03	-1.995E 03	-2.533E 03	5.273E 03	2.923E 00	4.430E-03	3.735E 00	5.659E-03
7.277E 01	1.790E 00	2.173E 00	2.566E 03	-4.536E 03	-1.998E 03	-2.540E 03	5.290E 03	2.833E 00	4.293E-03	3.439E 00	5.212E-03
7.352E 01	2.480E 00	1.240E 00	2.629E 03	-4.589E 03	-2.012E 03	-2.578E 03	5.374E 03	3.925E 00	5.948E-03	1.962E 00	2.974E-03
7.352E 01	2.484E 00	1.235E 00	2.632E 03	-4.590E 03	-2.012E 03	-2.578E 03	5.375E 03	3.931E 00	5.957E-03	1.954E 00	2.962E-03
7.485E 01	3.705E 00	0.000	2.697E 03	-4.689E 03	-2.033E 03	-2.657E 03	5.426E 03	5.863E 00	8.885E-03	0.000	0.000
7.770E 01	2.590E 00	0.000	2.823E 03	-4.723E 03	-2.066E 03	-2.657E 03	5.525E 03	4.099E 00	6.211E-03	0.000	0.000
8.160E 01	1.875E 00	0.000	2.918E 03	-4.752E 03	-2.096E 03	-2.657E 03	5.630E 03	2.967E 00	4.496E-03	0.000	0.000
8.441E 01	2.435E 00	0.000	2.966E 03	-4.775E 03	-2.118E 03	-2.657E 03	5.684E 03	3.853E 00	5.839E-03	0.000	0.000
8.727E 01	4.750E 00	0.000	3.053E 03	-4.814E 03	-2.158E 03	-2.657E 03	5.707E 03	7.517E 00	1.139E-02	0.000	0.000
8.727E 01	4.755E 00	0.000	3.053E 03	-4.814E 03	-2.158E 03	-2.657E 03	5.707E 03	7.525E 00	1.140E-02	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	1.176E 02	1.176E 02	2.181E-03	4.912E-02
4.041E 01	1.696E-01	1.178E 02	2.193E-03	5.217E-02
4.129E 01	1.488E 01	1.327E 02	2.308E-03	5.573E-02
4.136E 01	1.095E 00	1.338E 02	2.316E-03	5.606E-02
4.150E 01	2.378E 00	1.361E 02	2.335E-03	5.663E-02
4.246E 01	1.597E 01	1.521E 02	2.406E-03	5.826E-02
4.408E 01	2.618E 01	1.783E 02	2.437E-03	5.720E-02
4.431E 01	3.651E 00	1.819E 02	2.444E-03	5.729E-02
4.479E 01	7.638E 00	1.896E 02	2.461E-03	5.745E-02
4.480E 01	9.680E-02	1.897E 02	2.462E-03	5.746E-02
4.552E 01	1.124E 01	2.009E 02	2.475E-03	5.667E-02
4.626E 01	1.134E 01	2.123E 02	2.457E-03	5.385E-02
4.731E 01	1.542E 01	2.277E 02	2.411E-03	4.886E-02
4.732E 01	1.130E-01	2.278E 02	2.410E-03	4.883E-02
4.811E 01	1.101E 01	2.388E 02	2.351E-03	4.410E-02
4.876E 01	9.394E 00	2.482E 02	3.113E-03	4.284E-02
4.877E 01	1.392E-01	2.483E 02	2.640E-03	5.141E-02
4.930E 01	6.344E 00	2.547E 02	2.536E-03	5.430E-02
5.071E 01	1.380E 01	2.685E 02	2.660E-03	5.687E-02
5.281E 01	1.616E 01	2.846E 02	2.841E-03	4.947E-02
5.331E 01	3.511E 00	2.881E 02	3.037E-03	4.490E-02
5.405E 01	5.214E 00	2.934E 02	3.163E-03	4.215E-02
5.406E 01	6.982E-02	2.934E 02	3.055E-03	4.427E-02
5.482E 01	5.154E 00	2.986E 02	3.007E-03	4.411E-02
5.576E 01	6.034E 00	3.046E 02	3.080E-03	4.166E-02
5.623E 01	1.808E 00	3.064E 02	3.159E-03	3.733E-02
5.624E 01	4.796E-02	3.065E 02	3.220E-03	3.628E-02
5.630E 01	2.741E-01	3.067E 02	3.191E-03	3.709E-02
5.644E 01	7.096E-01	3.074E 02	3.233E-03	3.628E-02
5.652E 01	4.120E-01	3.079E 02	3.422E-03	3.322E-02
5.680E 01	1.435E 00	3.093E 02	3.413E-03	3.330E-02
5.702E 01	1.168E 00	3.105E 02	3.392E-03	3.391E-02
5.775E 01	3.901E 00	3.144E 02	3.344E-03	3.498E-02
5.877E 01	5.444E 00	3.198E 02	3.355E-03	3.435E-02
6.078E 01	1.130E 01	3.311E 02	3.279E-03	3.680E-02
6.220E 01	9.493E 00	3.406E 02	3.206E-03	3.814E-02
6.466E 01	1.987E 01	3.818E 02	3.222E-03	3.743E-02
6.504E 01	3.364E 00	3.852E 02	3.205E-03	3.646E-02
6.508E 01	3.617E-01	3.855E 02	3.205E-03	3.645E-02
6.528E 01	1.815E 00	3.873E 02	3.198E-03	3.590E-02
6.694E 01	1.446E 01	4.018E 02	3.061E-03	2.338E-02
6.761E 01	4.393E 00	4.062E 02	2.951E-03	1.389E-02
6.838E 01	4.172E 00	4.104E 02	2.936E-03	1.326E-02
6.910E 01	3.961E 00	4.143E 02	2.950E-03	1.404E-02
6.971E 01	3.346E 00	4.177E 02	2.934E-03	1.339E-02
7.066E 01	4.586E 00	4.223E 02	2.897E-03	1.063E-02
7.109E 01	1.837E 00	4.241E 02	2.878E-03	9.631E-03
7.262E 01	5.679E 00	4.298E 02	2.827E-03	7.460E-03
7.277E 01	4.693E-01	4.302E 02	2.818E-03	7.125E-03
7.352E 01	2.213E 00	4.325E 02	2.806E-03	6.779E-03
7.352E 01	4.156E-03	4.325E 02	2.806E-03	6.777E-03
7.485E 01	1.660E 00	4.341E 02	2.894E-03	1.136E-02
7.770E 01	3.420E 00	4.375E 02	2.833E-03	8.600E-03
8.160E 01	2.971E 00	4.405E 02	2.772E-03	6.728E-03
8.441E 01	1.506E 00	4.420E 02	2.796E-03	6.176E-03
8.727E 01	8.266E-01	4.428E 02	2.877E-03	1.335E-02

READING = 0097 BLOCK = 180 TIME = 271.614 MACH 5.2 PT = 416.999 TT = 2225.0

X	DDRAG	CDRAG	CF	HC
8.727E 01	0.000	4.428E 02	2.877E-03	1.336E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2348.	(LBF)
MEASURED THRUST	2606.	(LBF)
CALCULATED SPECIFIC IMPULSE	3102.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3442.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.7961	
MEASURED THRUST COEFFICIENT	0.8836	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	7707.	(LBF)
NET THRUST	2415.	(LBF)
SPECIFIC IMPULSE	3190.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.8189	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.6	(LBF)
INLET MOMENTUM CHANGE	-956.9	(LBF)
COMBUSTOR FRICTION DRAG	223.0	(LBF)
COMBUSTOR STRUT DRAG	136.32	(LBF)
COMBUSTOR MOMENTUM CHANGE	1949.	(LBF)
NOZZLE FRICTION DRAG	80.92	(LBF)
NOZZLE STRUT DRAG	67.21	(LBF)
NOZZLE MOMENTUM CHANGE	1356.	(LBF)
NOZZLE PRESSURE INTEGRAL	1504.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1475.	(LBF)
TOTAL STRUT DRAG	203.53	(LBF)
CAVITY FORCE	-1391.	(LBF)
CALCULATED LOAD CELL FORCE	-518.	(LBF)
MEASURED LOAD CELL FORCE	-260.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE -136.7, -147.4, 0.0,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2989	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.183	(IN)
NOZZLE SHROUD TRAILING EDGE	73.523	(IN)
NOZZLE PLUG TRAILING EDGE	87.275	(IN)
STRUT LEADING EDGE	56.439	(IN)
STRUT TRAILING EDGE	65.039	(IN)
COMBUSTOR EXIT	62.199	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.6643	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2868	
DELTA PT2	0.1405	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4871	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2918	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9132	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9209	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9257	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8898	
ENTHALPY AT PO - SUPERSONIC	-20.18	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-2.95	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0226
EQUIVALENCE RATIO	0.774
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.2774
COMBUSTOR EFFECTIVENESS	0.9120

INJECTOR DISCHARGE COEFFICIENTS 0.7691, 0.7284, 0.6841,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9307
NOZZLE COEFFICIENT - CT	0.8593
PROCESS EFFICIENCY	0.8715
KINETIC ENERGY EFFICIENCY	0.8458

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.284	
1C	44.300	
2A	48.759	C
2C	46.250	
3A	54.049	E
3B	56.234	E
4	44.784	

Reading 97

t = 295.91 sec.

2/27/75

PAGE 1

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READING = 0097  BLOCK = 207  TIME = 295.914  MACH  5.2  PT = 417.249  TT = 2221.4
                                        RAMJET PERFORMANCE

                                      S U M M A R Y   R E P O R T

            P        T      H             GAMMA  MOLWT  SONV  MACH   VEL    S      W/A       W     A/AC    MOMTM    G      IVAC  PHI  ETAC
WIND TUNNEL           1     0   4
 0.000   417.249 2221   442.1( 571) 1.3189 28.837 2248
 0.000     0.587  374   -39.4(  90) 1.3983 28.836  949 5.170 4908 1.780 0.14379 31.838 0.8645   4987 10.968 156.6
SPIKE TIP NS          2     0   6
 0.600    21.612 2221   442.1( 571) 1.3189 28.836 2248
 0.600    19.639 2170   427.6( 557) 1.3207 28.836 2223 0.383  852 1.984 0.14379 31.838 0.8645   5191  1.903 163.0
WIND TUNNEL           3     0   0
 0.000   417.249 2221   442.1( 571) 1.3189 28.837 2248
 0.000     0.631  382   -37.5(  92) 1.3984 28.836  959 5.107 4899 1.780 0.15117 33.470 0.8645   5236 11.508 156.4
SPIKE TIP NS          4     0   0
 0.600    21.612 2221   442.1( 571) 1.3189 28.836 2248
 0.600    19.401 2164   425.8( 555) 1.3209 28.836 2220 0.407  904 1.984 0.15117 33.470 0.8645   5236  2.123 156.4
INLET THROAT          5     0   4
40.400   203.300 2158   424.1( 553) 1.3211 28.837 2217
40.400    19.408 1184   160.1( 290) 1.3681 28.836 1671 2.175 3634 1.821 1.11211 33.470 0.1118   4336 66.032 129.6
INLET UPNRSK          6     0   3
40.400   203.300 2158   424.1( 553) 1.3211 28.837 2217
40.400    17.949 1159   153.8( 283) 1.3697 28.836 1654 2.223 3677 1.821 1.06285 33.470 0.1229   4391 60.742 131.2
INLET DNNRSK          7     0   4
40.400   121.649 2158   424.1( 553) 1.3211 28.836 2217
40.400   101.019 2062   397.0( 526) 1.3245 28.836 2170 0.536 1163 1.857 1.06285 33.470 0.1229   4391 19.207 131.2
COMBUSTOR        0    8     1   4
40.410   203.317 2158   424.0( 553) 1.3211 28.837 2217
40.410    21.169 1211   167.3( 297) 1.3664 28.836 1689 2.122 3585 1.821 1.16898 33.470 0.1118   4335 65.120 129.5
COMBUSTOR        0    9     2   4
41.292   169.458 2149   421.5( 551) 1.3214 28.836 2213
41.292    24.559 1317   194.5( 324) 1.3598 28.836 1757 1.918 3370 1.833 1.17278 33.470 0.1114   4286 61.416 125.7
COMBUSTOR        0   10     3   4
41.357   167.151 2148   421.2( 550) 1.3214 28.836 2212
41.357    24.822 1325   196.6( 326) 1.3593 28.836 1762 1.903 3353 1.834 1.17218 33.470 0.1115   4196 61.073 125.4
COMBUSTOR        0   11     4   4
41.500   162.638 2146   420.8( 550) 1.3215 28.836 2211
41.500    25.478 1343   201.2( 331) 1.3582 28.836 1773 1.869 3314 1.835 1.17377 33.470 0.1113   4174 60.458 124.7
COMBUSTOR        0   12     5   5
42.460   144.596 2135   417.5( 547) 1.3219 28.837 2206
42.460    27.813 1409   218.6( 348) 1.3542 28.836 1814 1.740 3155 1.842 1.16222 33.470 0.1124   4083 56.979 122.0
COMBUSTOR        0   13     6   4
44.077   132.539 2114   411.7( 541) 1.3226 28.836 2196
44.077    28.112 1430   224.3( 354) 1.3530 28.836 1827 1.677 3062 1.845 1.12312 33.470 0.1164   4023 53.448 120.2
COMBUSTOR        0   14     7   4
44.310   131.291 2112   410.9( 540) 1.3227 28.836 2194
44.310    28.267 1434   225.2( 355) 1.3528 28.836 1829 1.667 3048 1.845 1.12134 33.470 0.1165   4014 53.114 119.9
COMBUSTOR        0   15     8   4
44.792   128.453 2106   409.4( 539) 1.3229 28.836 2192
44.792    28.640 1443   227.6( 357) 1.3522 28.836 1834 1.644 3015 1.846 1.11685 33.470 0.1170   3995 52.335 119.4
COMBUSTOR        0   16     9   4
44.800   128.368 2106   409.3( 538) 1.3229 28.836 2192
44.800    28.635 1443   227.7( 357) 1.3522 28.836 1834 1.644 3015 1.846 1.11639 33.470 0.1171   3995 52.306 119.4
COMBUSTOR        0   17    10   4
45.517   124.541 2099   407.5( 537) 1.3232 28.836 2188
45.517    28.357 1446   228.4( 358) 1.3521 28.836 1836 1.630 2993 1.847 1.09537 33.470 0.1193   3980 50.948 118.9
COMBUSTOR        0   18    11   4
46.260   121.942 2093   405.8( 535) 1.3234 28.836 2185
46.260    26.529 1424   222.8( 352) 1.3533 28.836 1823 1.660 3026 1.848 1.05163 33.470 0.1243   3992 49.453 119.3
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	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
47.310	121.066	2085	403.4(533)	1.3237	28.836	2181											
47.310	22.934	1368	207.8(337)	1.3567	28.836	1789	1.749	3128	1.847	0.97868	33.470	0.1335	4038	47.571	120.6		
COMBUSTOR	0	20	13 3														
47.317	121.071	2085	403.4(533)	1.3237	28.836	2181											
47.317	22.905	1367	207.7(337)	1.3567	28.836	1788	1.750	3129	1.847	0.97812	33.470	0.1336	4038	47.557	120.7		
COMBUSTOR	0	21	14 4														
48.110	121.664	2078	401.5(531)	1.3239	28.836	2178											
48.110	19.796	1309	192.6(322)	1.3602	28.836	1752	1.845	3233	1.846	0.91208	33.470	0.1433	4090	45.828	122.2		
COMBUSTOR	0	22	15 3														
48.767	120.686	2073	400.1(529)	1.3241	28.836	2175											
48.767	17.051	1258	179.2(309)	1.3634	28.836	1720	1.933	3324	1.846	0.84088	33.470	0.1554	4137	43.440	123.6		
COMBUSTOR	0	23	16 3														
49.297	119.401	2069	398.9(528)	1.3242	28.836	2173											
49.297	15.177	1220	169.5(299)	1.3658	28.836	1695	1.999	3388	1.846	0.78643	33.470	0.1662	4170	41.407	124.6		
COMBUSTOR	0	24	17 9														
50.707	131.337	2056	395.2(524)	1.3247	28.836	2167											
50.707	10.597	1072	131.6(261)	1.3751	28.836	1594	2.279	3632	1.838	0.67025	33.470	0.1950	4307	37.829	128.7		
COMBUSTOR	0	25	18 202														
52.807	84.048	2112	387.9(542)	1.3219	28.760	2197											
52.807	35.000	1699	272.9(428)	1.3380	28.760	1983	1.210	2399	1.884	0.55119	33.582	0.2379	4636	20.546	138.1	0.02	1.00
COMBUSTOR	0	26	19 200														
53.307	77.855	2107	386.5(541)	1.3221	28.760	2195											
53.307	39.233	1779	294.7(449)	1.3345	28.760	2026	1.058	2143	1.888	0.52866	33.582	0.2480	4729	17.610	140.8	0.02	1.00
COMBUSTOR	0	27	20 4														
54.047	58.433	2956	418.9(874)	1.2876	26.206	2687											
54.047	40.124	2715	338.1(795)	1.2956	26.206	2584	0.778	2011	2.192	0.50394	33.934	0.2629	4823	15.749	142.1	0.38	0.56
COMBUSTOR	0	28	21 2														
54.057	58.420	2957	418.8(875)	1.2875	26.207	2688											
54.057	40.136	2717	338.1(795)	1.2956	26.208	2584	0.778	2010	2.192	0.50355	33.934	0.2631	4825	15.731	142.2	0.38	0.56
COMBUSTOR	0	29	22 4														
54.817	57.540	3083	416.6(914)	1.2815	26.351	2730											
54.817	41.050	2861	341.0(840)	1.2891	26.352	2638	0.738	1946	2.201	0.47618	33.934	0.2782	4978	14.400	146.7	0.38	0.64
COMBUSTOR	0	30	23 4														
55.760	56.685	3235	413.7(962)	1.2741	26.529	2779											
55.760	41.931	3030	343.1(894)	1.2812	26.530	2697	0.697	1880	2.211	0.44658	33.934	0.2967	5169	13.046	152.3	0.38	0.74
COMBUSTOR	0	31	24 5														
56.232	53.318	3333	438.6(1103)	1.2725	23.870	2972											
56.232	42.372	3172	376.4(1043)	1.2782	23.872	2906	0.607	1764	2.426	0.36413	34.285	0.3676	5870	9.984	171.2	0.74	0.47
COMBUSTOR	0	32	25 2														
56.242	53.313	3334	438.6(1103)	1.2725	23.872	2972											
56.242	42.381	3173	376.4(1043)	1.2781	23.873	2906	0.607	1763	2.426	0.36387	34.285	0.3679	5873	9.972	171.3	0.74	0.47
COMBUSTOR	0	33	26 4														
56.297	52.556	3563	438.4(1185)	1.2606	24.107	3043											
56.297	40.366	3372	363.0(1113)	1.2677	24.111	2969	0.654	1943	2.441	0.36284	34.285	0.3689	5884	10.954	171.6	0.74	0.55
COMBUSTOR	0	34	27 3														
56.437	52.473	3582	438.0(1192)	1.2595	24.128	3049											
56.437	40.432	3393	363.2(1121)	1.2666	24.133	2976	0.650	1936	2.442	0.36017	34.285	0.3717	5911	10.834	172.4	0.74	0.56
COMBUSTOR	0	35	28 6														
56.517	53.788	3424	437.8(1135)	1.2679	23.965	3001											
56.517	42.638	3259	373.5(1074)	1.2738	23.967	2935	0.611	1795	2.430	0.36420	34.285	0.3675	5926	10.157	172.8	0.74	0.51
COMBUSTOR	0	36	29 3														
56.797	54.070	3480	437.0(1155)	1.2650	24.025	3018											
56.797	42.900	3314	372.0(1093)	1.2710	24.028	2952	0.611	1804	2.433	0.36300	34.285	0.3688	5974	10.176	174.2	0.74	0.53
COMBUSTOR	0	37	30 4														
57.023	53.958	3630	436.4(1209)	1.2569	24.183	3063											
57.023	42.174	3451	364.7(1141)	1.2638	24.188	2994	0.632	1894	2.442	0.36232	34.285	0.3695	6009	10.664	175.3	0.74	0.58

READING = 0097 BLOCK = 207 TIME = 295.914 MACH 5.2 PT = 417.249 TT = 2221.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
57.747	53.146	4002	434.4(1342)	1.2346	24.592	3160											
57.747	39.850	3788	343.8(1261)	1.2438	24.606	3085	0.690	2129	2.460	0.35669	34.285	0.3753	6099	11.803	177.9	0.74	0.72
COMBUSTOR	0	39	32 3														
58.767	53.807	3965	431.2(1329)	1.2369	24.560	3151											
58.767	41.325	3769	348.7(1254)	1.2453	24.572	3082	0.659	2033	2.457	0.35442	34.285	0.3777	6164	11.197	179.8	0.74	0.71
COMBUSTOR	0	40	33 4														
60.777	53.842	4292	423.9(1447)	1.2143	24.950	3223											
60.777	37.837	4033	307.0(1347)	1.2264	24.985	3137	0.771	2418	2.467	0.36676	34.285	0.3650	6114	13.782	178.3	0.74	0.85
COMBUSTOR	0	41	34 4														
62.197	53.820	4470	418.4(1511)	1.2006	25.172	3256											
62.197	32.981	4118	252.6(1375)	1.2174	25.240	3142	0.916	2880	2.471	0.37670	34.285	0.3553	6071	16.859	177.1	0.74	0.93
SONIC THROAT		42	35 202														
62.197	56.723	4617	418.4(1565)	1.1893	25.346	3282											
62.197	32.981	4238	230.5(1417)	1.2071	25.445	3162	0.970	3060	2.467	0.37670	34.285	0.3553	6269	17.947	182.8	0.74	1.00
COMBUSTOR REGEN		43	36 21														
62.197	53.820	4531	450.7(1535)	1.1967	25.152	3274											
62.197	30.170	4118	253.3(1375)	1.2165	25.237	3141	1.000	3143	2.478	0.37670	34.285	0.3553	6095	18.399	177.8	0.74	0.93
NOZZLE AE		44	37 4														
87.273	53.820	4470	418.4(1503)	1.2006	25.172	3256											
87.273	1.294	2103	-521.4(638)	1.2996	25.309	2317	2.960	6858	2.471	0.06910	34.285	1.9372	7950	7.364	231.9	0.74	0.93
NOZZLE PO		45	38 4														
87.273	53.820	4470	418.4(1503)	1.2006	25.172	3256											
87.273	0.631	1777	-630.5(529)	1.3141	25.309	2142	3.383	7245	2.471	0.04215	34.285	3.1758	8234	4.746	240.1	0.74	0.93
NOZZLE AE REGEN		46	39 4														
87.273	53.820	4531	450.7(1535)	1.1967	25.152	3274											
87.273	1.317	2156	-503.2(657)	1.2974	25.309	2344	2.947	6909	2.478	0.06910	34.285	1.9372	8016	7.419	233.8	0.74	0.93
NOZZLE PO REGEN		47	40 4														
87.273	53.820	4531	450.7(1535)	1.1967	25.152	3274											
87.273	0.631	1816	-617.6(542)	1.3122	25.309	2163	3.380	7312	2.478	0.04162	34.285	3.2162	8311	4.729	242.4	0.74	0.93
FICTIVE COMBUSTR		69	62 0														
62.197	203.300	4674	418.4(1586)	1.2025	25.410	3316											
62.197	0.631	1364	-839.5(395)	1.3352	25.544	1883	4.213	7934	2.367	0.06067	34.285	2.2065	8811	7.480	257.0	0.74	1.00
FICTIVE NOZZLE		70	63 0														
87.273	29.340	4347	366.4(1464)	1.2008	25.179	3210											
87.273	1.704	2483	-389.3(770)	1.2851	25.309	2504	2.456	6150	2.507	0.06910	34.285	1.9371	7398	6.604	215.8	0.74	0.93

READING = 0097 BLOCK = 207 TIME = 295.914 MACH 5.2 PT = 417.249 TT = 2221.4

XABS	P-IB	P-OB	PDA	QuX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.981E-01	1.375E 00	0.000	-5.286E-01	0.000	0.000	0.000	2.470E-02	2.179E 00	3.295E-03	0.000	0.000
1.836E 01	1.375E 00	0.000	-4.574E 01	0.000	0.000	0.000	1.634E 02	2.179E 00	3.295E-03	0.000	0.000
3.070E 01	2.515E 00	0.000	-2.034E 02	0.000	0.000	0.000	5.053E 02	3.985E 00	6.028E-03	0.000	0.000
3.508E 01	4.233E 00	0.000	-4.221E 02	0.000	0.000	0.000	6.804E 02	6.708E 00	1.015E-02	0.000	0.000
3.517E 01	4.268E 00	6.053E 00	-4.892E 02	0.000	0.000	0.000	6.846E 02	6.763E 00	1.023E-02	9.591E 00	1.451E-02
3.518E 01	4.270E 00	6.029E 00	-4.893E 02	0.000	0.000	0.000	6.849E 02	6.766E 00	1.023E-02	9.554E 00	1.445E-02
3.555E 01	4.405E 00	4.614E 00	-4.976E 02	0.000	0.000	0.000	7.219E 02	6.980E 00	1.056E-02	7.311E 00	1.106E-02
3.585E 01	4.326E 00	3.475E 00	-5.101E 02	-2.786E 02	-2.786E 02	0.000	7.521E 02	6.855E 00	1.037E-02	5.506E 00	8.328E-03
3.606E 01	4.270E 00	4.834E 00	-5.191E 02	-2.820E 02	-2.820E 02	0.000	7.739E 02	6.766E 00	1.023E-02	7.660E 00	1.159E-02
3.648E 01	4.834E 00	7.513E 00	-5.323E 02	-2.889E 02	-2.889E 02	0.000	8.175E 02	7.660E 00	1.159E-02	1.191E 01	1.801E-02
3.701E 01	4.597E 00	1.089E 01	-5.475E 02	-3.459E 02	-2.981E 02	-4.780E 01	8.735E 02	7.285E 00	1.102E-02	1.726E 01	2.611E-02
3.731E 01	6.008E 00	1.279E 01	-5.555E 02	-3.662E 02	-3.034E 02	-6.279E 01	9.054E 02	9.520E 00	1.440E-02	2.026E 01	3.065E-02
3.803E 01	9.442E 00	1.627E 01	-6.092E 02	-4.158E 02	-3.172E 02	-9.861E 01	9.844E 02	1.496E 01	2.263E-02	2.578E 01	3.899E-02
3.833E 01	1.241E 01	1.770E 01	-6.355E 02	-4.366E 02	-3.234E 02	-1.132E 02	1.018E 03	1.966E 01	2.973E-02	2.805E 01	4.242E-02
3.875E 01	1.663E 01	1.865E 01	-6.802E 02	-4.675E 02	-3.335E 02	-1.340E 02	1.065E 03	2.635E 01	3.986E-02	2.954E 01	4.469E-02
3.880E 01	1.710E 01	1.875E 01	-6.849E 02	-4.710E 02	-3.348E 02	-1.363E 02	1.071E 03	2.709E 01	4.098E-02	2.971E 01	4.494E-02
3.901E 01	1.922E 01	1.889E 01	-7.041E 02	-4.872E 02	-3.406E 02	-1.467E 02	1.095E 03	3.046E 01	4.608E-02	2.993E 01	4.528E-02
3.931E 01	1.894E 01	1.909E 01	-7.266E 02	-5.105E 02	-3.494E 02	-1.611E 02	1.129E 03	3.001E 01	4.539E-02	3.025E 01	4.575E-02
3.950E 01	1.875E 01	1.347E 01	-7.394E 02	-5.260E 02	-3.556E 02	-1.704E 02	1.152E 03	2.971E 01	4.494E-02	2.134E 01	3.227E-02
3.980E 01	1.991E 01	4.825E 00	-7.661E 02	-5.505E 02	-3.660E 02	-1.846E 02	1.186E 03	3.155E 01	4.772E-02	7.645E 00	1.156E-02
4.000E 01	2.070E 01	4.856E 00	-7.897E 02	-5.678E 02	-3.737E 02	-1.941E 02	1.210E 03	3.281E 01	4.962E-02	7.694E 00	1.164E-02
4.040E 01	2.378E 01	4.916E 00	-8.367E 02	-6.025E 02	-3.899E 02	-2.126E 02	1.257E 03	3.764E 01	5.693E-02	7.790E 00	1.178E-02
4.041E 01	2.383E 01	4.918E 00	-8.377E 02	-6.034E 02	-3.903E 02	-2.130E 02	1.258E 03	3.776E 01	5.711E-02	7.792E 00	1.179E-02
4.129E 01	3.055E 01	5.051E 00	-9.516E 02	-6.899E 02	-4.306E 02	-2.592E 02	1.362E 03	4.841E 01	7.322E-02	8.004E 00	1.211E-02
4.136E 01	3.105E 01	5.061E 00	-9.605E 02	-6.969E 02	-4.339E 02	-2.631E 02	1.370E 03	4.920E 01	7.441E-02	8.019E 00	1.213E-02
4.150E 01	3.214E 01	5.786E 00	-9.801E 02	-7.126E 02	-4.411E 02	-2.715E 02	1.387E 03	5.092E 01	7.702E-02	9.168E 00	1.387E-02
4.246E 01	1.946E 01	1.065E 01	-1.056E 03	-8.221E 02	-4.929E 02	-3.292E 02	1.502E 03	3.084E 01	4.664E-02	1.688E 01	2.553E-02
4.408E 01	2.540E 01	1.884E 01	-1.089E 03	-1.017E 03	-5.807E 02	-4.359E 02	1.698E 03	4.024E 01	6.087E-02	2.986E 01	4.516E-02
4.431E 01	2.625E 01	1.925E 01	-1.094E 03	-1.044E 03	-5.928E 02	-4.514E 02	1.726E 03	4.160E 01	6.292E-02	3.050E 01	4.613E-02
4.479E 01	2.802E 01	2.008E 01	-1.106E 03	-1.096E 03	-6.175E 02	-4.783E 02	1.785E 03	4.440E 01	6.715E-02	3.182E 01	4.813E-02
4.480E 01	2.805E 01	2.010E 01	-1.106E 03	-1.097E 03	-6.179E 02	-4.787E 02	1.786E 03	4.445E 01	6.723E-02	3.184E 01	4.816E-02
4.552E 01	2.497E 01	2.134E 01	-1.110E 03	-1.159E 03	-6.541E 02	-5.050E 02	1.874E 03	3.956E 01	5.983E-02	3.381E 01	5.114E-02
4.626E 01	2.177E 01	2.189E 01	-1.086E 03	-1.216E 03	-6.919E 02	-5.239E 02	1.965E 03	3.449E 01	5.217E-02	3.469E 01	5.247E-02
4.731E 01	1.725E 01	2.268E 01	-1.025E 03	-1.296E 03	-7.457E 02	-5.503E 02	2.095E 03	2.733E 01	4.134E-02	3.594E 01	5.436E-02
4.732E 01	1.719E 01	2.269E 01	-1.024E 03	-1.297E 03	-7.461E 02	-5.505E 02	2.096E 03	2.724E 01	4.121E-02	3.595E 01	5.437E-02
4.811E 01	1.065E 01	1.891E 01	-9.620E 02	-1.357E 03	-7.872E 02	-5.697E 02	2.195E 03	1.688E 01	2.552E-02	2.996E 01	4.531E-02
4.877E 01	1.578E 01	1.578E 01	-9.065E 02	-1.406E 03	-8.214E 02	-5.844E 02	2.277E 03	2.500E 01	3.781E-02	2.500E 01	3.781E-02
4.930E 01	1.325E 01	1.325E 01	-8.664E 02	-1.445E 03	-8.492E 02	-5.954E 02	2.344E 03	2.100E 01	3.176E-02	2.100E 01	3.176E-02
5.071E 01	2.796E 01	2.796E 01	-7.141E 02	-1.568E 03	-9.239E 02	-6.440E 02	2.521E 03	4.430E 01	6.700E-02	4.430E 01	6.700E-02
5.281E 01	3.500E 01	3.500E 01	-3.675E 02	-1.770E 03	-1.037E 03	-7.324E 02	2.788E 03	5.546E 01	8.388E-02	5.546E 01	8.388E-02
5.331E 01	3.923E 01	3.923E 01	-2.710E 02	-1.815E 03	-1.064E 03	-7.506E 02	2.851E 03	6.217E 01	9.403E-02	6.217E 01	9.403E-02
5.405E 01	4.012E 01	4.012E 01	-1.195E 02	-1.885E 03	-1.105E 03	-7.797E 02	2.946E 03	6.358E 01	9.616E-02	6.358E 01	9.616E-02
5.406E 01	4.014E 01	4.014E 01	-1.174E 02	-1.886E 03	-1.106E 03	-7.801E 02	2.947E 03	6.360E 01	9.619E-02	6.360E 01	9.619E-02
5.482E 01	4.105E 01	4.105E 01	3.993E 01	-1.961E 03	-1.148E 03	-8.131E 02	3.044E 03	6.505E 01	9.838E-02	6.505E 01	9.838E-02
5.576E 01	4.193E 01	4.193E 01	2.361E 02	-2.059E 03	-1.200E 03	-8.586E 02	3.166E 03	6.644E 01	1.005E-01	6.644E 01	1.005E-01
5.623E 01	4.237E 01	4.237E 01	9.387E 02	-2.107E 03	-1.224E 03	-8.832E 02	3.208E 03	6.714E 01	1.016E-01	6.714E 01	1.016E-01
5.624E 01	4.238E 01	4.238E 01	9.415E 02	-2.108E 03	-1.224E 03	-8.837E 02	3.209E 03	6.716E 01	1.016E-01	6.716E 01	1.016E-01
5.630E 01	3.830E 01	4.243E 01	9.536E 02	-2.113E 03	-1.227E 03	-8.866E 02	3.216E 03	6.069E 01	9.179E-02	6.724E 01	1.017E-01
5.644E 01	3.830E 01	4.256E 01	9.813E 02	-2.127E 03	-1.233E 03	-8.942E 02	3.234E 03	6.069E 01	9.179E-02	6.744E 01	1.020E-01
5.652E 01	4.264E 01	4.264E 01	9.984E 02	-2.134E 03	-1.236E 03	-8.984E 02	3.244E 03	6.756E 01	1.022E-01	6.756E 01	1.022E-01
5.680E 01	4.290E 01	4.290E 01	1.054E 03	-2.161E 03	-1.248E 03	-9.133E 02	3.280E 03	6.798E 01	1.028E-01	6.798E 01	1.028E-01
5.702E 01	4.217E 01	4.217E 01	1.096E 03	-2.183E 03	-1.258E 03	-9.252E 02	3.309E 03	6.683E 01	1.011E-01	6.683E 01	1.011E-01
5.775E 01	3.985E 01	3.985E 01	1.207E 03	-2.252E 03	-1.289E 03	-9.629E 02	3.402E 03	6.314E 01	9.551E-02	6.314E 01	9.551E-02
5.877E 01	4.132E 01	4.132E 01	1.301E 03	-2.359E 03	-1.333E 03	-1.026E 03	3.532E 03	6.548E 01	9.904E-02	6.548E 01	9.904E-02
6.078E 01	3.784E 01	3.784E 01	1.310E 03	-2.613E 03	-1.421E 03	-1.192E 03	3.790E 03	5.996E 01	9.068E-02	5.996E 01	9.068E-02
6.220E 01	3.298E 01	3.298E 01	1.310E 03	-2.801E 03	-1.489E 03	-1.312E 03	3.972E 03	5.226E 01	7.904E-02	5.226E 01	7.904E-02

READING = 0097 BLOCK = 207 TIME = 295.914 MACH 5.2 PT = 417.249 TT = 2221.4

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.466E 01	2.562E 01	2.562E 01	1.310E 03	-3.136E 03	-1.628E 03	-1.509E 03	4.289E 03	4.059E 01	6.139E-02	4.059E 01	6.139E-02
6.504E 01	2.290E 01	2.449E 01	1.310E 03	-3.190E 03	-1.651E 03	-1.538E 03	4.337E 03	3.629E 01	5.488E-02	3.881E 01	5.870E-02
6.508E 01	2.290E 01	2.437E 01	1.310E 03	-3.195E 03	-1.654E 03	-1.541E 03	4.342E 03	3.629E 01	5.488E-02	3.862E 01	5.841E-02
6.528E 01	2.159E 01	2.377E 01	1.310E 03	-3.222E 03	-1.666E 03	-1.556E 03	4.368E 03	3.422E 01	5.176E-02	3.767E 01	5.698E-02
6.694E 01	1.076E 01	9.412E 00	1.493E 03	-3.424E 03	-1.757E 03	-1.667E 03	4.583E 03	1.705E 01	2.579E-02	1.491E 01	2.256E-02
6.761E 01	8.202E 00	1.335E 00	1.644E 03	-3.499E 03	-1.788E 03	-1.712E 03	4.665E 03	1.300E 01	1.966E-02	2.115E 00	3.200E-03
6.838E 01	5.260E 00	3.699E 00	1.782E 03	-3.589E 03	-1.819E 03	-1.770E 03	4.760E 03	8.335E 00	1.261E-02	5.862E 00	8.866E-03
6.910E 01	4.586E 00	5.910E 00	1.909E 03	-3.680E 03	-1.846E 03	-1.834E 03	4.848E 03	7.267E 00	1.099E-02	9.365E 00	1.416E-02
6.971E 01	4.015E 00	4.979E 00	2.014E 03	-3.751E 03	-1.866E 03	-1.885E 03	4.922E 03	6.362E 00	9.623E-03	7.890E 00	1.193E-02
7.066E 01	2.948E 00	3.530E 00	2.137E 03	-3.828E 03	-1.894E 03	-1.934E 03	5.036E 03	4.671E 00	7.065E-03	5.593E 00	8.460E-03
7.109E 01	2.465E 00	3.273E 00	2.180E 03	-3.853E 03	-1.906E 03	-1.947E 03	5.088E 03	3.906E 00	5.908E-03	5.187E 00	7.845E-03
7.262E 01	1.859E 00	2.360E 00	2.298E 03	-3.941E 03	-1.943E 03	-1.998E 03	5.273E 03	2.946E 00	4.456E-03	3.740E 00	5.656E-03
7.277E 01	1.800E 00	2.166E 00	2.306E 03	-3.949E 03	-1.946E 03	-2.003E 03	5.290E 03	2.852E 00	4.314E-03	3.432E 00	5.191E-03
7.352E 01	2.438E 00	1.195E 00	2.369E 03	-3.996E 03	-1.960E 03	-2.036E 03	5.374E 03	3.864E 00	5.844E-03	1.894E 00	2.864E-03
7.352E 01	2.442E 00	1.190E 00	2.371E 03	-3.996E 03	-1.960E 03	-2.036E 03	5.375E 03	3.869E 00	5.852E-03	1.885E 00	2.852E-03
7.485E 01	3.870E 00	0.000	2.438E 03	-4.085E 03	-1.982E 03	-2.103E 03	5.426E 03	5.657E 00	8.556E-03	0.000	0.000
7.770E 01	2.508E 00	0.000	2.556E 03	-4.487E 03	-2.018E 03	-2.469E 03	5.525E 03	3.969E 00	6.004E-03	0.000	0.000
8.160E 01	1.895E 00	0.000	2.650E 03	-4.518E 03	-2.048E 03	-2.469E 03	5.630E 03	3.003E 00	4.542E-03	0.000	0.000
8.441E 01	2.430E 00	0.000	2.698E 03	-4.541E 03	-2.072E 03	-2.469E 03	5.684E 03	3.850E 00	5.824E-03	0.000	0.000
8.727E 01	4.685E 00	0.000	2.784E 03	-4.582E 03	-2.113E 03	-2.469E 03	5.707E 03	7.424E 00	1.123E-02	0.000	0.000
8.727E 01	4.690E 00	0.000	2.784E 03	-4.582E 03	-2.113E 03	-2.469E 03	5.707E 03	7.431E 00	1.124E-02	0.000	0.000

READING = 0097 BLOCK = 207 TIME = 295.914 MACH 5.2 PT = 417.249 T1 = 2221.4

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.173E 02	1.173E 02	2.181E-03	4.917E-02
4.041E 01	1.696E-01	1.174E 02	2.193E-03	5.214E-02
4.129E 01	1.485E 01	1.323E 02	2.307E-03	5.574E-02
4.136E 01	1.095E 00	1.334E 02	2.316E-03	5.597E-02
4.150E 01	2.410E 00	1.358E 02	2.335E-03	5.662E-02
4.246E 01	1.599E 01	1.518E 02	2.405E-03	5.822E-02
4.408E 01	2.615E 01	1.779E 02	2.436E-03	5.716E-02
4.431E 01	3.680E 00	1.816E 02	2.444E-03	5.727E-02
4.479E 01	7.606E 00	1.892E 02	2.462E-03	5.750E-02
4.480E 01	1.285E-01	1.893E 02	2.462E-03	5.749E-02
4.552E 01	1.121E 01	2.005E 02	2.478E-03	5.676E-02
4.626E 01	1.135E 01	2.119E 02	2.462E-03	5.401E-02
4.731E 01	1.540E 01	2.273E 02	2.413E-03	4.893E-02
4.732E 01	1.010E-01	2.274E 02	2.413E-03	4.889E-02
4.811E 01	1.101E 01	2.384E 02	2.361E-03	4.429E-02
4.877E 01	8.571E 00	2.470E 02	2.311E-03	3.974E-02
4.930E 01	6.468E 00	2.534E 02	2.275E-03	3.641E-02
5.071E 01	1.542E 01	2.689E 02	2.109E-03	2.829E-02
5.281E 01	1.784E 01	2.867E 02	2.482E-03	5.025E-02
5.331E 01	3.074E 00	2.898E 02	2.574E-03	4.910E-02
5.405E 01	4.422E 00	2.942E 02	3.034E-03	4.106E-02
5.406E 01	6.134E-02	2.943E 02	3.060E-03	4.054E-02
5.482E 01	4.481E 00	2.987E 02	3.049E-03	3.986E-02
5.576E 01	5.100E 00	3.038E 02	3.082E-03	3.816E-02
5.623E 01	1.556E 00	3.054E 02	3.282E-03	3.282E-02
5.624E 01	4.100E-02	3.054E 02	3.159E-03	3.482E-02
5.630E 01	2.313E-01	3.057E 02	3.115E-03	3.633E-02
5.644E 01	6.099E-01	3.063E 02	3.184E-03	3.503E-02
5.652E 01	3.550E-01	3.066E 02	3.425E-03	3.089E-02
5.680E 01	1.193E 00	3.078E 02	3.156E-03	3.527E-02
5.702E 01	9.464E-01	3.088E 02	3.144E-03	3.593E-02
5.775E 01	3.260E 00	3.120E 02	3.122E-03	3.702E-02
5.877E 01	4.772E 00	3.168E 02	3.227E-03	3.473E-02
6.078E 01	1.023E 01	3.270E 02	3.124E-03	3.770E-02
6.220E 01	8.743E 00	3.358E 02	3.141E-03	3.757E-02
6.466E 01	1.867E 01	3.746E 02	3.210E-03	3.635E-02
6.504E 01	3.187E 00	3.778E 02	3.190E-03	3.545E-02
6.508E 01	3.432E-01	3.781E 02	3.190E-03	3.542E-02
6.528E 01	1.724E 00	3.799E 02	3.181E-03	3.490E-02
6.694E 01	1.378E 01	3.936E 02	3.024E-03	2.268E-02
6.761E 01	4.222E 00	3.979E 02	2.909E-03	1.367E-02
6.838E 01	4.037E 00	4.019E 02	2.894E-03	1.305E-02
6.910E 01	3.828E 00	4.057E 02	2.909E-03	1.456E-02
6.971E 01	3.225E 00	4.089E 02	2.891E-03	1.306E-02
7.066E 01	4.401E 00	4.133E 02	2.851E-03	1.030E-02
7.109E 01	1.764E 00	4.151E 02	2.832E-03	9.411E-03
7.262E 01	5.513E 00	4.206E 02	2.782E-03	7.448E-03
7.277E 01	4.597E-01	4.211E 02	2.772E-03	7.103E-03
7.352E 01	2.151E 00	4.232E 02	2.756E-03	6.634E-03
7.352E 01	4.007E-03	4.232E 02	2.756E-03	6.631E-03
7.485E 01	1.592E 00	4.248E 02	2.847E-03	1.099E-02
7.770E 01	3.273E 00	4.281E 02	2.784E-03	8.408E-03
8.160E 01	2.884E 00	4.310E 02	2.729E-03	6.760E-03
8.441E 01	1.477E 00	4.325E 02	2.753E-03	8.130E-03
8.727E 01	8.028E-01	4.333E 02	2.836E-03	1.313E-02
8.727E 01	0.000	4.333E 02	2.836E-03	1.314E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2108.	(LBF)
MEASURED THRUST	2547.	(LBF)
CALCULATED SPECIFIC IMPULSE	2929.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3539.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.7153	
MEASURED THRUST COEFFICIENT	0.8642	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	7460.	(LBF)
NET THRUST	2170.	(LBF)
SPECIFIC IMPULSE	3015.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.7361	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.3	(LBF)
INLET MOMENTUM CHANGE	-953.9	(LBF)
COMBUSTOR FRICTION DRAG	218.5	(LBF)
COMBUSTOR STRUT DRAG	140.12	(LBF)
COMBUSTOR MOMENTUM CHANGE	1734.	(LBF)
NOZZLE FRICTION DRAG	77.34	(LBF)
NOZZLE STRUT DRAG	69.09	(LBF)
NOZZLE MOMENTUM CHANGE	1328.	(LBF)
NOZZLE PRESSURE INTEGRAL	1474.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1474.	(LBF)
TOTAL STRUT DRAG	209.21	(LBF)
CAVITY FORCE	-1406.	(LBF)
CALCULATED LOAD CELL FORCE	-772.	(LBF)
MEASURED LOAD CELL FORCE	-333.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -152.8,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2969	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.181	(IN)
NOZZLE SHROUD TRAILING EDGE	73.521	(IN)
NOZZLE PLUG TRAILING EDGE	87.273	(IN)
STRUT LEADING EDGE	56.437	(IN)
STRUT TRAILING EDGE	65.037	(IN)
COMBUSTOR EXIT	62.197	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8645	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2866	
DELTA PT2	0.1404	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4872	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2915	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9130	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9207	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9266	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8906	
ENTHALPY AT P0 - SUPERSONIC	-20.27	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-3.02	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0214
EQUIVALENCE RATIO	0.736
COMBUSTOR EFFICIENCY	0.930
TOTAL PRESSURE RATIO	0.2647
COMBUSTOR EFFECTIVENESS	0.8706
INJECTOR DISCHARGE COEFFICIENTS	0.7353, 0.6886,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9307
NOZZLE COEFFICIENT - CT	0.8605
PROCESS EFFICIENCY	0.8829
KINETIC ENERGY EFFICIENCY	0.8464

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.282	
1C	44.300	
2A	48.757	
2C	46.250	
3A	54.047	E
3B	56.232	E
4	44.782	

Reading 97

t = 317.51 sec.

READING = 0097 BLOCK = 231 TIME = 317.510 MACH 5.2 PT = 416.499 TT = 2210.5 — 2-27-75

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	FOMIP	C	IVAL	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	416.499	2210	439.0(568)	1.3193	28.837	2242											
0.000	0.587	372	-39.9(90)	1.3982	28.836	947	5.170	4895	1.779	0.14411	31.908	0.8645	4984	10.962	150.2		
SPIKE TIP NS		2	0 6														
0.600	21.637	2210	439.0(568)	1.3193	28.836	2242											
0.600	19.668	2160	424.6(559)	1.3211	28.836	2218	0.302	848	1.983	0.14411	31.908	0.8645	5196	1.699	162.0		
WIND TUNNEL		3	0 0														
0.000	416.499	2210	439.0(568)	1.3193	28.837	2242											
0.000	0.632	380	-37.9(91)	1.3984	28.836	957	5.105	4885	1.779	0.15177	33.604	0.8645	5242	11.521	156.0		
SPIKE TIP NS		4	0 0														
0.600	21.637	2210	439.0(568)	1.3193	28.836	2242											
0.600	19.422	2153	422.7(552)	1.3213	28.836	2215	0.407	902	1.983	0.15177	33.604	0.8645	5242	2.127	156.0		
INLET THROAT		5	0 4														
40.400	202.488	2150	421.8(551)	1.3214	28.837	2213											
40.400	19.466	1181	159.4(289)	1.3683	28.836	1669	2.171	3623	1.821	1.11457	33.604	0.1118	4342	66.095	129.2		
INLET UPNRSK		6	0 3														
40.400	202.488	2150	421.8(551)	1.3214	28.837	2213											
40.400	16.057	1157	153.4(283)	1.3698	28.836	1653	2.217	3665	1.821	1.06711	33.604	0.1229	4396	66.776	130.8		
INLET DNNRSK		7	0 4														
40.400	121.763	2150	421.8(551)	1.3214	28.836	2213											
40.400	101.051	2054	394.8(524)	1.3248	28.836	2166	0.537	1163	1.856	1.06711	33.604	0.1229	4396	19.279	130.8		
COMBUSTOR	0	8	1 4														
40.410	202.536	2150	421.8(551)	1.3214	28.837	2213											
40.410	21.299	1210	166.8(296)	1.3665	28.836	1688	2.116	3572	1.821	1.17367	33.604	0.1118	4340	65.148	129.2		
COMBUSTOR	0	9	2 4														
41.292	168.776	2142	419.4(549)	1.3217	28.836	2209											
41.292	24.741	1316	194.3(324)	1.3598	28.836	1756	1.911	3356	1.832	1.17748	33.604	0.1114	4211	61.412	125.3		
COMBUSTOR	0	10	3 4														
41.357	166.471	2141	419.2(548)	1.3217	28.836	2209											
41.357	25.009	1324	196.4(326)	1.3593	28.836	1762											
							1.895	3339	1.833	1.17688	33.604	0.1115	4201	61.066	125.0		
COMBUSTOR	0	11	4 4														
41.500	161.970	2139	418.6(548)	1.3217	28.836	2208											
41.500	25.677	1342	201.1(330)	1.3563	28.836	1773	1.862	3300	1.835	1.17848	33.604	0.1113	4179	60.445	124.4		
COMBUSTOR	0	12	5 5														
42.460	143.944	2129	415.8(545)	1.3221	28.837	2203											
42.460	28.079	1410	218.8(348)	1.3542	28.836	1814	1.731	3139	1.841	1.16688	33.604	0.1124	4087	56.926	121.6		
COMBUSTOR	0	13	6 4														
44.077	131.861	2110	410.5(540)	1.3228	28.836	2194											
44.077	28.443	1433	225.1(355)	1.3528	28.836	1828	1.666	3045	1.845	1.12763	33.604	0.1164	4028	53.367	119.9		
COMBUSTOR	0	14	7 4														
44.310	130.621	2107	409.7(539)	1.3229	28.836	2192											
44.310	28.607	1437	226.1(356)	1.3526	28.836	1831	1.656	3031	1.845	1.12584	33.604	0.1165	4020	53.031	119.6		
COMBUSTOR	0	15	8 4														
44.792	127.810	2102	408.3(537)	1.3230	28.836	2190											
44.792	28.996	1447	228.7(358)	1.3520	28.836	1836	1.633	2998	1.846	1.12133	33.604	0.1170	4000	52.248	119.0		
COMBUSTOR	0	16	9 4														
44.800	127.727	2102	408.3(537)	1.3230	28.836	2190											
44.800	28.991	1447	228.7(358)	1.3520	28.836	1837	1.632	2996	1.846	1.12087	33.604	0.1171	4000	52.218	119.0		
COMBUSTOR	0	17	10 4														
45.517	123.907	2096	406.6(536)	1.3233	28.836	2187											
45.517	28.724	1450	229.6(359)	1.3518	28.836	1839	1.619	2976	1.847	1.09976	33.604	0.1193	3986	50.855	118.6		
COMBUSTOR	0	18	11 4														
46.260	121.240	2090	404.9(534)	1.3235	28.836	2184											
46.260	26.887	1429	224.1(353)	1.3550	28.836	1826	1.647	3006	1.846	1.05585	33.604	0.1243	3998	49.359	119.0		

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	A	A/AC	MOMTM	C	TVAL	PHI	FTAC
COMBUSTOR	0	19	12	3													
47.310	120.179	2082	402.7(532)	1.3238	28.036	2180											
47.310	23.261	1374	209.4(339)	1.3563	28.036	1792	1.735	3109	1.647	0.98261	33.604	0.1335	4043	47.483	120.3		
COMBUSTOR	0	20	13	3													
47.317	120.183	2082	402.7(532)	1.3238	28.036	2180											
47.317	23.232	1373	209.3(339)	1.3564	28.036	1792	1.736	3110	1.647	0.98204	33.604	0.1336	4044	47.469	120.3		
COMBUSTOR	0	21	14	4													
48.110	121.577	2076	400.9(530)	1.3240	28.036	2177											
48.110	19.939	1311	192.9(322)	1.3602	28.036	1753	1.840	3226	1.846	0.91574	33.604	0.1433	4101	45.907	122.0		
COMBUSTOR	0	22	15	4													
48.767	123.079	2071	399.4(529)	1.3242	28.036	2174											
48.767	16.873	1246	176.3(306)	1.3642	28.036	1712	1.952	3342	1.844	0.84426	33.604	0.1554	4162	43.846	123.9		
COMBUSTOR	0	23	16	5													
49.297	125.329	2067	398.3(527)	1.3243	28.036	2172											
49.297	14.685	1192	162.4(292)	1.3675	28.036	1677											
							2.049	3436	1.842	0.78958	33.604	0.1662	4213	42.159	125.4		
COMBUSTOR	0	24	17	11													
50.707	152.138	2055	394.9(524)	1.3247	28.036	2166											
50.707	9.647	1002	114.3(244)	1.3743	28.036	1544	2.427	3746	1.827	0.67294	33.604	0.1950	4396	39.191	130.8		
COMBUSTOR	0	25	18	202													
52.807	82.358	2112	388.2(542)	1.3219	28.760	2197											
52.807	42.000	1789	297.6(452)	1.3341	28.760	2031	1.048	2129	1.885	0.55339	33.716	0.2379	4790	18.310	142.1	0.02	1.00
COMBUSTOR	0	26	19	200													
53.307	77.435	2108	386.8(541)	1.3221	28.760	2195											
53.307	46.050	1854	315.8(470)	1.3315	28.760	2066	0.913	1886	1.889	0.53078	33.716	0.2480	4902	15.558	145.4	0.02	1.00
COMBUSTOR	0	27	20	4													
54.047	62.012	2866	428.7(867)	1.2927	25.435	2691											
54.047	46.172	2680	364.8(804)	1.2989	25.435	2608	0.685	1788	2.227	0.50712	34.148	0.2629	5007	14.091	146.6	0.46	0.43
COMBUSTOR	0	28	21	2													
54.057	61.999	2868	428.7(868)	1.2926	25.437	2692											
54.057	46.174	2682	364.8(805)	1.2988	25.437	2609	0.685	1788	2.227	0.50673	34.148	0.2631	5009	14.079	146.7	0.46	0.43
COMBUSTOR	0	29	22	4													
54.817	61.066	3025	426.1(918)	1.2852	25.609	2747											
54.817	46.300	2844	363.1(857)	1.2913	25.610	2670	0.665	1776	2.239	0.47919	34.148	0.2782	5184	13.225	151.8	0.46	0.52
COMBUSTOR	0	30	23	4													
55.760	60.092	3217	422.5(980)	1.2760	25.826	2811											
55.760	46.467	3042	360.6(920)	1.2820	25.827	2740	0.642	1760	2.252	0.44940	34.148	0.2967	5399	12.293	156.1	0.46	0.62
COMBUSTOR	0	31	24	5													
56.232	56.867	3253	455.2(1122)	1.2780	22.737	3015											
56.232	46.550	3113	399.5(1068)	1.2828	22.738	2955	0.565	1669	2.503	0.36726	34.580	0.3676	6177	9.527	178.6	0.90	0.39
COMBUSTOR	0	32	25	2													
56.242	56.859	3255	455.1(1123)	1.2779	22.739	3016											
56.242	46.552	3115	399.5(1069)	1.2827	22.740	2956	0.565	1669	2.503	0.36699	34.580	0.3679	6180	9.519	178.7	0.90	0.39
COMBUSTOR	0	33	26	4													
56.297	56.066	3506	454.9(1216)	1.2651	22.985	3098											
56.297	44.556	3342	386.9(1151)	1.2712	22.988	3031	0.609	1845	2.521	0.36596	34.580	0.3689	6193	10.493	179.1	0.90	0.46
COMBUSTOR	0	34	27	3													
56.437	55.970	3532	454.3(1225)	1.2639	23.010	3106											
56.437	44.568	3367	386.5(1161)	1.2699	23.013	3039	0.606	1843	2.522	0.36526	34.580	0.3717	6223	10.402	180.0	0.90	0.47
COMBUSTOR	0	35	28	8													
56.517	57.285	3382	454.0(1170)	1.2716	22.664	3058											
56.517	46.600	3235	394.7(1112)	1.2768	22.666	2997	0.575	1723	2.511	0.36733	34.580	0.3675	6239	9.638	180.4	0.90	0.43
COMBUSTOR	0	36	29	4													
56.797	57.503	3471	452.9(1202)	1.2670	22.953	3086											
56.797	46.650	3320	391.4(1144)	1.2725	22.956	3025	0.560	1754	2.516	0.36612	34.580	0.3686	6291	9.980	181.9	0.90	0.45
COMBUSTOR	0	37	30	4													
57.023	57.339	3651	451.9(1272)	1.2574	23.135	3141											
57.023	45.782	3486	382.9(1205)	1.2637	23.139	3076	0.604	1858	2.527	0.36543	34.580	0.3695	6329	10.552	183.0	0.90	0.51

READING = 0097 BLOCK = 231 TIME = 317.514 MACH 5.2 PT = 416.499 TT = 2210.5

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	PUMTP	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 5														
57.747	56.345	4103	448.8(1439)	1.2248	23.612	3259											
57.747	43.000	3900	357.9(1358)	1.2388	23.629	3188	0.669	2134	2.551	0.35976	34.580	0.3753	6427	11.931	185.8	0.90	0.66
COMBUSTOR	0	39	32 4														
58.767	57.106	4042	444.7(1416)	1.2339	23.558	3244											
58.767	44.662	3857	362.9(1302)	1.2419	23.571	3179	0.637	2024	2.546	0.35747	34.580	0.3777	6496	11.244	187.8	0.90	0.64
COMBUSTOR	0	40	33 5														
60.777	56.893	4469	436.7(1578)	1.2025	24.044	3334											
60.777	40.387	4221	313.8(1477)	1.2143	24.092	3252	0.762	2480	2.561	0.36991	34.580	0.3650	6441	14.256	186.3	0.90	0.80
COMBUSTOR	0	41	34 4														
62.197	56.790	4671	431.1(1654)	1.1850	24.284	3366											
62.197	35.025	4338	253.3(1518)	1.2006	24.383	3259	0.915	2983	2.565	0.37993	34.580	0.3553	6393	17.610	184.9	0.90	0.89
SONIC THROAT		42	35 202														
62.197	59.720	4886	431.1(1737)	1.1662	24.523	3399											
62.197	35.025	4549	227.8(1597)	1.1784	24.690	3285	0.971	3189	2.561	0.37993	34.580	0.3553	6616	18.831	191.3	0.90	1.00
COMBUSTOR REGEN		43	36 6														
62.197	56.790	4643	413.9(1643)	1.1868	24.298	3358											
62.197	35.792	4323	244.9(1512)	1.2020	24.389	3255	0.893	2908	2.561	0.37993	34.580	0.3553	6383	17.169	184.6	0.90	0.89
NOZZLE AE		44	37 4														
87.273	56.790	4671	431.1(1660)	1.1850	24.284	3366											
87.273	1.397	2282	-598.2(726)	1.2904	24.506	2444	2.936	7177	2.565	0.06969	34.580	1.9372	6407	7.773	243.1	0.90	0.89
NOZZLE PO		45	38 4														
87.273	56.790	4671	431.1(1660)	1.1850	24.284	3366											
87.273	0.632	1902	-732.4(592)	1.3062	24.507	2245	3.399	7630	2.565	0.04023	34.580	3.3559	8744	4.771	252.9	0.90	0.89
NOZZLE AE REGEN		46	39 4														
87.273	56.790	4643	413.9(1643)	1.1868	24.298	3358											
87.273	1.385	2254	-608.2(716)	1.2915	24.506	2430	2.943	7152	2.561	0.06969	34.580	1.9372	8374	7.746	242.2	0.90	0.89
NOZZLE PO REGEN		47	40 4														
87.273	56.790	4643	413.9(1643)	1.1868	24.298	3358											
87.273	0.632	1882	-739.4(585)	1.3071	24.507	2234	3.401	7597	2.561	0.04049	34.580	3.3347	8705	4.780	251.7	0.90	0.89
FICTIVE COMBUSTR		69	62 0														
62.197	202.488	4987	431.1(1776)	1.1792	24.636	3445											
62.197	0.632	1566	-996.2(473)	1.3192	24.938	2030	4.164	8451	2.463	0.05506	34.580	2.4519	9480	7.232	274.2	0.90	1.00
FICTIVE NOZZLE		70	63 0														
87.273	28.307	4585	403.8(1620)	1.1796	24.261	3329											
87.273	1.956	2821	-398.8(924)	1.2708	24.505	2697	2.350	6337	2.616	0.06970	34.580	1.9371	7782	6.864	225.0	0.90	0.89

XABS	P-IB	P-OB	PDA	GOA	W-IB	W-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.961E-01	1.370E 00	0.000	-5.292E-01	0.000	0.000	0.000	2.970E-02	2.196E 00	3.269E-03	0.000	0.000
1.836E 01	1.370E 00	0.000	-4.557E 01	0.000	0.000	0.000	1.634E 02	2.196E 00	3.269E-03	0.000	0.000
3.070E 01	2.520E 00	0.000	-2.033E 02	0.000	0.000	0.000	5.053E 02	3.985E 00	6.050E-03	0.000	0.000
3.508E 01	4.229E 00	0.000	-4.219E 02	0.000	0.000	0.000	6.804E 02	6.687E 00	1.015E-02	0.000	0.000
3.517E 01	4.268E 00	6.042E 00	-4.890E 02	0.000	0.000	0.000	6.846E 02	6.749E 00	1.025E-02	9.553E 00	1.451E-02
3.518E 01	4.271E 00	6.019E 00	-4.890E 02	0.000	0.000	0.000	6.849E 02	6.753E 00	1.025E-02	9.517E 00	1.445E-02
3.555E 01	4.425E 00	4.609E 00	-4.974E 02	0.000	0.000	0.000	7.219E 02	6.997E 00	1.062E-02	7.288E 00	1.107E-02
3.585E 01	4.341E 00	3.475E 00	-5.100E 02	-2.833E 02	-2.833E 02	0.000	7.521E 02	6.863E 00	1.042E-02	5.495E 00	8.343E-03
3.606E 01	4.280E 00	4.833E 00	-5.191E 02	-2.868E 02	-2.868E 02	0.000	7.739E 02	6.766E 00	1.028E-02	7.641E 00	1.160E-02
3.648E 01	4.833E 00	7.508E 00	-5.324E 02	-2.936E 02	-2.938E 02	0.000	8.175E 02	7.642E 00	1.160E-02	1.187E 01	1.803E-02
3.701E 01	4.590E 00	1.088E 01	-5.476E 02	-3.458E 02	-3.031E 02	-4.063E 01	8.735E 02	7.258E 00	1.102E-02	1.721E 01	2.613E-02
3.731E 01	6.009E 00	1.277E 01	-5.556E 02	-3.619E 02	-3.086E 02	-5.337E 01	9.054E 02	9.501E 00	1.443E-02	2.020E 01	3.067E-02
3.803E 01	9.465E 00	1.626E 01	-6.095E 02	-4.064E 02	-3.226E 02	-8.380E 01	9.844E 02	1.497E 01	2.273E-02	2.571E 01	3.903E-02
3.833E 01	1.244E 01	1.769E 01	-6.360E 02	-4.251E 02	-3.289E 02	-9.622E 01	1.018E 03	1.967E 01	2.986E-02	2.797E 01	4.247E-02
3.875E 01	1.667E 01	1.864E 01	-6.809E 02	-4.530E 02	-3.392E 02	-1.138E 02	1.065E 03	2.636E 01	4.003E-02	2.948E 01	4.476E-02
3.880E 01	1.714E 01	1.875E 01	-6.856E 02	-4.562E 02	-3.404E 02	-1.158E 02	1.071E 03	2.711E 01	4.116E-02	2.965E 01	4.502E-02
3.901E 01	1.927E 01	1.888E 01	-7.049E 02	-4.709E 02	-3.463E 02	-1.246E 02	1.095E 03	3.048E 01	4.628E-02	2.985E 01	4.532E-02
3.931E 01	1.899E 01	1.905E 01	-7.277E 02	-4.921E 02	-3.552E 02	-1.369E 02	1.129E 03	3.003E 01	4.561E-02	3.012E 01	4.574E-02
3.950E 01	1.881E 01	1.345E 01	-7.406E 02	-5.064E 02	-3.615E 02	-1.448E 02	1.152E 03	2.975E 01	4.517E-02	2.127E 01	3.230E-02
3.980E 01	1.995E 01	4.850E 00	-7.673E 02	-5.289E 02	-3.720E 02	-1.568E 02	1.186E 03	3.155E 01	4.790E-02	7.669E 00	1.164E-02
4.000E 01	2.073E 01	4.875E 00	-7.910E 02	-5.447E 02	-3.798E 02	-1.649E 02	1.210E 03	3.278E 01	4.977E-02	7.708E 00	1.170E-02
4.040E 01	2.379E 01	4.923E 00	-8.380E 02	-5.768E 02	-3.962E 02	-1.806E 02	1.257E 03	3.762E 01	5.713E-02	7.784E 00	1.182E-02
4.041E 01	2.387E 01	4.924E 00	-8.391E 02	-5.777E 02	-3.966E 02	-1.810E 02	1.258E 03	3.774E 01	5.731E-02	7.786E 00	1.182E-02
4.129E 01	3.062E 01	5.031E 00	-9.533E 02	-6.573E 02	-4.374E 02	-2.200E 02	1.362E 03	4.842E 01	7.352E-02	7.955E 00	1.208E-02
4.136E 01	3.112E 01	5.039E 00	-9.622E 02	-6.638E 02	-4.406E 02	-2.232E 02	1.370E 03	4.920E 01	7.471E-02	7.968E 00	1.210E-02
4.150E 01	3.221E 01	5.769E 00	-9.818E 02	-6.782E 02	-4.480E 02	-2.302E 02	1.387E 03	5.094E 01	7.734E-02	9.123E 00	1.385E-02
4.246E 01	1.950E 01	1.067E 01	-1.058E 03	-7.787E 02	-5.003E 02	-2.784E 02	1.502E 03	3.083E 01	4.682E-02	1.687E 01	2.561E-02
4.408E 01	2.533E 01	1.892E 01	-1.091E 03	-9.570E 02	-5.890E 02	-3.680E 02	1.698E 03	4.005E 01	6.082E-02	2.991E 01	4.542E-02
4.431E 01	2.617E 01	1.930E 01	-1.096E 03	-9.824E 02	-6.012E 02	-3.812E 02	1.726E 03	4.138E 01	6.283E-02	3.051E 01	4.633E-02
4.479E 01	2.791E 01	2.008E 01	-1.107E 03	-1.030E 03	-6.261E 02	-4.039E 02	1.765E 03	4.413E 01	6.701E-02	3.175E 01	4.822E-02
4.480E 01	2.794E 01	2.010E 01	-1.107E 03	-1.031E 03	-6.265E 02	-4.042E 02	1.786E 03	4.418E 01	6.708E-02	3.178E 01	4.825E-02
4.552E 01	2.490E 01	2.126E 01	-1.111E 03	-1.090E 03	-6.632E 02	-4.264E 02	1.874E 03	3.937E 01	5.977E-02	3.362E 01	5.105E-02
4.626E 01	2.174E 01	2.184E 01	-1.087E 03	-1.144E 03	-7.015E 02	-4.422E 02	1.965E 03	3.438E 01	5.220E-02	3.453E 01	5.243E-02
4.731E 01	1.729E 01	2.264E 01	-1.026E 03	-1.221E 03	-7.562E 02	-4.644E 02	2.095E 03	2.734E 01	4.151E-02	3.581E 01	5.437E-02
4.732E 01	1.723E 01	2.265E 01	-1.026E 03	-1.221E 03	-7.565E 02	-4.646E 02	2.096E 03	2.725E 01	4.137E-02	3.581E 01	5.438E-02
4.811E 01	1.072E 01	2.187E 01	-9.577E 02	-1.279E 03	-7.983E 02	-4.810E 02	2.195E 03	1.696E 01	2.575E-02	3.459E 01	5.252E-02
4.877E 01	2.123E 01	2.123E 01	-8.879E 02	-1.327E 03	-8.333E 02	-4.942E 02	2.277E 03	3.357E 01	5.098E-02	3.357E 01	5.098E-02
4.930E 01	2.071E 01	2.071E 01	-8.299E 02	-1.366E 03	-8.617E 02	-5.045E 02	2.344E 03	3.275E 01	4.973E-02	3.275E 01	4.973E-02
5.071E 01	3.279E 01	3.279E 01	-6.321E 02	-1.460E 03	-9.381E 02	-5.418E 02	2.521E 03	5.185E 01	7.874E-02	5.185E 01	7.874E-02
5.281E 01	4.200E 01	4.200E 01	-2.204E 02	-1.664E 03	-1.055E 03	-6.090E 02	2.788E 03	6.641E 01	1.008E-01	6.641E 01	1.008E-01
5.331E 01	4.605E 01	4.605E 01	-1.059E 02	-1.707E 03	-1.083E 03	-6.248E 02	2.851E 03	7.282E 01	1.106E-01	7.282E 01	1.106E-01
5.405E 01	4.617E 01	4.617E 01	7.016E 01	-1.779E 03	-1.125E 03	-6.547E 02	2.946E 03	7.301E 01	1.109E-01	7.301E 01	1.109E-01
5.406E 01	4.617E 01	4.617E 01	7.250E 01	-1.780E 03	-1.125E 03	-6.552E 02	2.947E 03	7.301E 01	1.109E-01	7.301E 01	1.109E-01
5.482E 01	4.630E 01	4.630E 01	2.517E 02	-1.867E 03	-1.169E 03	-6.983E 02	3.044E 03	7.321E 01	1.112E-01	7.321E 01	1.112E-01
5.576E 01	4.647E 01	4.647E 01	4.710E 02	-1.943E 03	-1.223E 03	-7.694E 02	3.166E 03	7.347E 01	1.116E-01	7.347E 01	1.116E-01
5.623E 01	4.655E 01	4.655E 01	1.251E 03	-2.000E 03	-1.247E 03	-8.124E 02	3.208E 03	7.361E 01	1.118E-01	7.361E 01	1.118E-01
5.624E 01	4.655E 01	4.655E 01	1.254E 03	-2.061E 03	-1.248E 03	-8.134E 02	3.209E 03	7.361E 01	1.118E-01	7.361E 01	1.118E-01
5.630E 01	4.255E 01	4.656E 01	1.267E 03	-2.069E 03	-1.250E 03	-8.187E 02	3.216E 03	6.728E 01	1.022E-01	7.362E 01	1.118E-01
5.644E 01	4.255E 01	4.659E 01	1.297E 03	-2.089E 03	-1.256E 03	-8.325E 02	3.234E 03	6.728E 01	1.022E-01	7.366E 01	1.119E-01
5.652E 01	4.660E 01	4.660E 01	1.316E 03	-2.100E 03	-1.260E 03	-8.404E 02	3.244E 03	7.369E 01	1.119E-01	7.369E 01	1.119E-01
5.680E 01	4.665E 01	4.665E 01	1.377E 03	-2.140E 03	-1.272E 03	-8.682E 02	3.280E 03	7.376E 01	1.120E-01	7.376E 01	1.120E-01
5.702E 01	4.578E 01	4.578E 01	1.422E 03	-2.173E 03	-1.282E 03	-8.908E 02	3.309E 03	7.239E 01	1.099E-01	7.239E 01	1.099E-01
5.775E 01	4.300E 01	4.300E 01	1.542E 03	-2.278E 03	-1.314E 03	-9.640E 02	3.402E 03	6.799E 01	1.032E-01	6.799E 01	1.032E-01
5.877E 01	4.466E 01	4.466E 01	1.644E 03	-2.422E 03	-1.359E 03	-1.062E 03	3.532E 03	7.062E 01	1.072E-01	7.062E 01	1.072E-01
6.078E 01	4.039E 01	4.039E 01	1.654E 03	-2.700E 03	-1.451E 03	-1.249E 03	3.790E 03	6.386E 01	9.697E-02	6.386E 01	9.697E-02
6.220E 01	3.502E 01	3.502E 01	1.654E 03	-2.894E 03	-1.523E 03	-1.371E 03	3.972E 03	5.538E 01	8.409E-02	5.538E 01	8.409E-02

XABS	P-IB	P-OB	PDA	QUX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.466E 01	2.701E 01	2.701E 01	1.654E 03	-3.240E 03	-1.672E 03	-1.568E 03	4.289E 03	4.272E 01	6.466E-02	4.272E 01	6.486E-02
6.504E 01	2.417E 01	2.579E 01	1.654E 03	-3.295E 03	-1.697E 03	-1.598E 03	4.337E 03	3.823E 01	5.804E-02	4.078E 01	6.193E-02
6.508E 01	2.417E 01	2.566E 01	1.654E 03	-3.301E 03	-1.700E 03	-1.601E 03	4.342E 03	3.823E 01	5.804E-02	4.058E 01	6.162E-02
6.528E 01	2.279E 01	2.501E 01	1.654E 03	-3.329E 03	-1.714E 03	-1.616E 03	4.368E 03	3.604E 01	5.473E-02	3.955E 01	6.005E-02
6.694E 01	1.132E 01	9.975E 00	1.847E 03	-3.538E 03	-1.814E 03	-1.724E 03	4.583E 03	1.791E 01	2.719E-02	1.577E 01	2.395E-02
6.761E 01	8.703E 00	1.357E 00	2.006E 03	-3.614E 03	-1.849E 03	-1.765E 03	4.665E 03	1.376E 01	2.090E-02	2.147E 00	3.259E-03
6.838E 01	5.690E 00	3.922E 00	2.152E 03	-3.703E 03	-1.884E 03	-1.819E 03	4.760E 03	8.997E 00	1.366E-02	6.202E 00	9.417E-03
6.910E 01	4.881E 00	6.320E 00	2.289E 03	-3.792E 03	-1.914E 03	-1.878E 03	4.848E 03	7.717E 00	1.172E-02	9.993E 00	1.517E-02
6.971E 01	4.195E 00	5.305E 00	2.401E 03	-3.863E 03	-1.937E 03	-1.926E 03	4.922E 03	6.633E 00	1.007E-02	8.389E 00	1.274E-02
7.066E 01	3.032E 00	3.725E 00	2.530E 03	-3.944E 03	-1.969E 03	-1.975E 03	5.036E 03	4.794E 00	7.279E-03	5.890E 00	8.944E-03
7.109E 01	2.505E 00	3.443E 00	2.574E 03	-3.972E 03	-1.982E 03	-1.990E 03	5.088E 03	3.961E 00	6.014E-03	5.444E 00	8.267E-03
7.262E 01	1.904E 00	2.440E 00	2.695E 03	-4.063E 03	-2.022E 03	-2.040E 03	5.273E 03	3.011E 00	4.571E-03	3.858E 00	5.858E-03
7.277E 01	1.845E 00	2.230E 00	2.704E 03	-4.071E 03	-2.026E 03	-2.046E 03	5.290E 03	2.917E 00	4.430E-03	3.526E 00	5.354E-03
7.352E 01	2.530E 00	1.180E 00	2.768E 03	-4.117E 03	-2.042E 03	-2.075E 03	5.374E 03	4.001E 00	6.075E-03	1.866E 00	2.833E-03
7.352E 01	2.534E 00	1.174E 00	2.771E 03	-4.118E 03	-2.042E 03	-2.076E 03	5.375E 03	4.006E 00	6.083E-03	1.857E 00	2.820E-03
7.485E 01	3.745E 00	0.000	2.837E 03	-4.203E 03	-2.066E 03	-2.137E 03	5.426E 03	5.922E 00	8.992E-03	0.000	0.000
7.770E 01	2.660E 00	0.000	2.965E 03	-3.734E 03	-2.105E 03	-1.628E 03	5.525E 03	4.206E 00	6.387E-03	0.000	0.000
8.160E 01	1.960E 00	0.000	3.064E 03	-3.768E 03	-2.139E 03	-1.628E 03	5.630E 03	3.099E 00	4.706E-03	0.000	0.000
8.441E 01	2.460E 00	0.000	3.113E 03	-3.794E 03	-2.165E 03	-1.628E 03	5.684E 03	3.890E 00	5.906E-03	0.000	0.000
8.727E 01	4.815E 00	0.000	3.201E 03	-3.838E 03	-2.210E 03	-1.628E 03	5.707E 03	7.614E 00	1.156E-02	0.000	0.000
8.727E 01	4.820E 00	0.000	3.201E 03	-3.838E 03	-2.210E 03	-1.628E 03	5.707E 03	7.621E 00	1.157E-02	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.171E 02	1.171E 02	2.180E-03	4.926E-02
4.041E 01	1.697E-01	1.172E 02	2.193E-03	5.233E-02
4.129E 01	1.485E 01	1.321E 02	2.308E-03	5.597E-02
4.136E 01	1.046E 00	1.332E 02	2.317E-03	5.621E-02
4.150E 01	2.411E 00	1.356E 02	2.336E-03	5.687E-02
4.246E 01	1.599E 01	1.516E 02	2.407E-03	5.851E-02
4.408E 01	2.615E 01	1.777E 02	2.440E-03	5.749E-02
4.431E 01	3.679E 00	1.814E 02	2.448E-03	5.760E-02
4.479E 01	7.605E 00	1.890E 02	2.466E-03	5.784E-02
4.480E 01	1.285E-01	1.892E 02	2.466E-03	5.783E-02
4.552E 01	1.120E 01	2.004E 02	2.482E-03	5.710E-02
4.626E 01	1.135E 01	2.117E 02	2.467E-03	5.435E-02
4.731E 01	1.540E 01	2.271E 02	2.419E-03	4.927E-02
4.732E 01	1.011E-01	2.272E 02	2.418E-03	4.923E-02
4.811E 01	1.102E 01	2.382E 02	2.360E-03	4.446E-02
4.877E 01	8.592E 00	2.466E 02	2.298E-03	3.901E-02
4.930E 01	6.491E 00	2.533E 02	2.243E-03	3.594E-02
5.071E 01	1.543E 01	2.688E 02	2.030E-03	2.713E-02
5.281E 01	1.752E 01	2.863E 02	2.548E-03	5.256E-02
5.331E 01	2.795E 00	2.891E 02	2.632E-03	5.007E-02
5.405E 01	4.034E 00	2.931E 02	3.124E-03	4.085E-02
5.406E 01	5.570E-02	2.932E 02	3.060E-03	4.210E-02
5.482E 01	4.050E 00	2.972E 02	3.032E-03	4.158E-02
5.576E 01	4.710E 00	3.019E 02	3.059E-03	3.984E-02
5.623E 01	1.473E 00	3.034E 02	3.299E-03	3.364E-02
5.624E 01	3.905E-02	3.034E 02	3.129E-03	3.662E-02
5.630E 01	2.190E-01	3.036E 02	3.083E-03	3.847E-02
5.644E 01	5.796E-01	3.042E 02	3.160E-03	3.700E-02
5.652E 01	3.430E-01	3.046E 02	3.462E-03	3.179E-02
5.680E 01	1.164E 00	3.057E 02	3.124E-03	3.744E-02
5.702E 01	9.241E-01	3.067E 02	3.119E-03	3.619E-02
5.775E 01	3.236E 00	3.099E 02	3.096E-03	3.973E-02
5.877E 01	4.793E 00	3.147E 02	3.234E-03	3.688E-02
6.078E 01	1.044E 01	3.251E 02	3.116E-03	4.079E-02
6.220E 01	9.107E 00	3.342E 02	3.159E-03	4.037E-02
6.466E 01	1.971E 01	3.752E 02	3.239E-03	3.901E-02
6.504E 01	3.379E 00	3.786E 02	3.221E-03	3.804E-02
6.508E 01	3.640E-01	3.790E 02	3.220E-03	3.800E-02
6.528E 01	1.828E 00	3.808E 02	3.212E-03	3.744E-02
6.694E 01	1.462E 01	3.954E 02	3.066E-03	2.436E-02
6.761E 01	4.481E 00	3.999E 02	2.956E-03	1.466E-02
6.838E 01	4.302E 00	4.042E 02	2.944E-03	1.418E-02
6.910E 01	4.091E 00	4.083E 02	2.957E-03	1.577E-02
6.971E 01	3.433E 00	4.117E 02	2.938E-03	1.404E-02
7.066E 01	4.657E 00	4.164E 02	2.898E-03	1.097E-02
7.104E 01	1.855E 00	4.182E 02	2.879E-03	9.973E-03
7.262E 01	5.780E 00	4.240E 02	2.831E-03	7.854E-03
7.277E 01	4.806E-01	4.245E 02	2.822E-03	7.479E-03
7.352E 01	2.243E 00	4.267E 02	2.806E-03	6.951E-03
7.352E 01	4.170E-03	4.267E 02	2.806E-03	6.948E-03
7.485E 01	1.673E 00	4.284E 02	2.895E-03	1.176E-02
7.770E 01	3.475E 00	4.319E 02	2.837E-03	9.077E-03
8.160E 01	3.091E 00	4.349E 02	2.779E-03	7.154E-03
8.441E 01	1.540E 00	4.365E 02	2.799E-03	6.466E-03
8.727E 01	8.370E-01	4.373E 02	2.879E-03	1.364E-02
8.727E 01	0.000	4.373E 02	2.880E-03	1.365E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	2485.	(LBF)
MEASURED THRUST	2960.	(LBF)
CALCULATED SPECIFIC IMPULSE	2823.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3365.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.8420	
MEASURED THRUST COEFFICIENT	1.0097	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	7751.	(LBF)
NET THRUST	2454.	(LBF)
SPECIFIC IMPULSE	2789.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.8317	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.1	(LBF)
INLET MOMENTUM CHANGE	-955.1	(LBF)
COMBUSTOR FRICTION DRAG	217.2	(LBF)
COMBUSTOR STRUT DRAG	155.94	(LBF)
COMBUSTOR MOMENTUM CHANGE	2052.	(LBF)
NOZZLE FRICTION DRAG	81.80	(LBF)
NOZZLE STRUT DRAG	76.89	(LBF)
NOZZLE MOMENTUM CHANGE	1388.	(LBF)
NOZZLE PRESSURE INTEGRAL	1547.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1475.	(LBF)
TOTAL STRUT DRAG	232.83	(LBF)
CAVITY FORCE	-1279.	(LBF)
CALCULATED LOAD CELL FORCE	-270.	(LBF)
MEASURED LOAD CELL FORCE	225.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE -154.9,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2969	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.181	(IN)
NOZZLE SHROUD TRAILING EDGE	73.521	(IN)
NOZZLE PLUG TRAILING EDGE	67.275	(IN)
STRUT LEADING EDGE	56.437	(IN)
STRUT TRAILING EDGE	65.037	(IN)
COMBUSTOR EXIT	62.197	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8645	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2874	
DELTA PT2	0.1409	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4862	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2923	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9121	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9206	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9276	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8919	
ENTHALPY AT P0 - SUPERSONIC	-20.56	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-3.53	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0261
EQUIVALENCE RATIO	0.896
COMBUSTOR EFFICIENCY	0.868
TOTAL PRESSURE RATIO	0.2805
COMBUSTOR EFFECTIVENESS	0.8564
INJECTOR DISCHARGE COEFFICIENTS	0.7332, 0.6893,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9256
NOZZLE COEFFICIENT - CT	0.8540
PROCESS EFFICIENCY	0.8287
KINETIC ENERGY EFFICIENCY	0.8320

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.282	
1C	44.300	
2A	48.757	
2C	46.250	
3A	54.047	E
3B	56.232	E
4	44.782	

Reading 97

t = 322.01 sec.

Test cell pressure was high which resulted in increased pressures in the AIM nozzle.

READING = 0097 BLOCK = 236 TIME = 322.014 MACH 5.2 PT = 416.999 TT = 2211.9 2-27-75 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL 1 0 4																	
0.000	416.999	2212	439.4(568)	1.3192	28.837	2243											
0.000	0.587	372	-39.8(90)	1.3982	28.836	947	5.170	4897	1.779	0.14421	31.923	0.8643	4968	10.974	156.3		
SPIKE TIP NS 2 0 6																	
0.600	21.637	2212	439.4(568)	1.3193	28.836	2243											
0.600	19.663	2161	425.0(554)	1.3210	28.836	2219	0.383	849	1.983	0.14421	31.923	0.8643	5196	1.904	162.8		
WIND TUNNEL 3 0 0																	
0.000	416.999	2212	439.4(568)	1.3192	28.837	2243											
0.000	0.632	380	-37.9(92)	1.3984	28.836	957	5.106	4887	1.779	0.15171	33.583	0.8643	5241	11.521	156.1		
SPIKE TIP NS 4 0 0																	
0.600	21.637	2212	439.4(568)	1.3193	28.836	2243											
0.600	19.422	2155	423.1(552)	1.3212	28.836	2216	0.407	902	1.983	0.15171	33.583	0.8643	5241	2.126	156.1		
INLET THROAT 5 0 4																	
40.400	204.302	2152	422.3(551)	1.3213	28.837	2214											
40.400	19.384	1178	158.6(288)	1.3685	28.836	1667	2.179	3632	1.820	1.11555	33.583	0.1117	4346	66.242	129.4		
INLET UPNRSK 6 0 3																	
40.400	204.302	2152	422.3(551)	1.3213	28.837	2214											
40.400	17.949	1154	152.4(282)	1.3700	28.836	1651	2.226	3674	1.820	1.06687	33.583	0.1229	4400	60.922	131.0		
INLET DNNRSK 7 0 4																	
40.400	121.976	2152	422.3(551)	1.3213	28.836	2214											
40.400	101.312	2056	395.4(525)	1.3247	28.836	2167	0.535	1160	1.856	1.06687	33.583	0.1229	4400	19.240	131.0		
COMBUSTOR 0 8 1 4																	
40.410	204.363	2152	422.2(551)	1.3213	28.837	2214											
40.410	21.165	1206	165.8(295)	1.3667	28.836	1686	2.125	3582	1.820	1.17341	33.583	0.1117	4345	65.323	129.4		
COMBUSTOR 0 9 2 4																	
41.294	172.081	2143	419.8(549)	1.3216	28.836	2210											
41.294	24.289	1304	191.2(321)	1.3606	28.836	1749	1.934	3383	1.831	1.17592	33.583	0.1115	4225	61.818	125.8		
COMBUSTOR 0 10 3 4																	
41.359	170.196	2142	419.6(549)	1.3216	28.836	2210											
41.359	24.584	1311	193.1(323)	1.3601	28.836	1754	1.920	3367	1.832	1.17776	33.583	0.1113	4215	61.622	125.5		
COMBUSTOR 0 11 4 4																	
41.500	165.665	2141	419.2(548)	1.3217	28.836	2209											
41.500	25.154	1328	197.4(327)	1.3591	28.836	1764	1.889	3332	1.833	1.17774	33.583	0.1113	4195	60.979	124.9		
COMBUSTOR 0 12 5 5																	
42.460	148.051	2130	416.2(545)	1.3221	28.836	2204											
42.460	27.269	1390	213.6(343)	1.3554	28.836	1802	1.767	3184	1.840	1.16612	33.583	0.1124	4109	57.708	122.4		
COMBUSTOR 0 13 6 4																	
44.079	136.218	2111	410.8(540)	1.3227	28.836	2194											
44.079	27.467	1409	218.7(348)	1.3542	28.836	1814	1.709	3100	1.843	1.12747	33.583	0.1163	4054	54.317	120.7		
COMBUSTOR 0 14 7 4																	
44.310	134.903	2109	410.1(539)	1.3228	28.836	2193											
44.310	27.605	1413	219.7(349)	1.3540	28.836	1816	1.700	3086	1.843	1.12538	33.583	0.1165	4045	53.976	120.5		
COMBUSTOR 0 15 8 3																	
44.794	132.068	2103	408.6(538)	1.3230	28.836	2190											
44.794	27.907	1421	221.8(351)	1.3535	28.836	1821	1.679	3057	1.844	1.12041	33.583	0.1170	4027	53.228	119.9		
COMBUSTOR 0 16 9 3																	
44.800	132.016	2103	408.6(538)	1.3230	28.836	2190											
44.800	27.919	1421	221.9(351)	1.3535	28.836	1821	1.678	3056	1.844	1.12043	33.583	0.1170	4027	53.216	119.9		
COMBUSTOR 0 17 10 3																	
45.519	128.586	2097	406.8(536)	1.3232	28.836	2187											
45.519	27.522	1421	221.9(351)	1.3535	28.836	1821	1.671	3042	1.845	1.09943	33.583	0.1193	4016	51.974	119.6		
COMBUSTOR 0 18 11 3																	
46.260	126.606	2091	405.2(534)	1.3234	28.836	2185											
46.260	25.627	1396	215.4(345)	1.3550	28.836	1806	1.706	3082	1.845	1.05547	33.583	0.1242	4032	50.551	120.1		

READING = 0097 BLOCK = 236 TIME = 322.014 MACH 5.2 PT = 416.999 TT = 2211.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	/A		A/AC	MOMTM	F	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
47.310	126.276	2083	402.9(532)	1.3237	28.836	2180											
47.310	22.134	1339	200.3(330)	1.3584	28.836	1771	1.798	3184	1.844	0.98227	33.583	0.1335	4080	46.605	121.5		
COMBUSTOR	0	20	13 3														
47.319	126.296	2063	402.9(532)	1.3237	28.836	2180											
47.319	22.110	1338	200.2(330)	1.3585	28.836	1771	1.799	3185	1.844	0.98182	33.583	0.1335	4081	46.596	121.5		
COMBUSTOR	0	21	14 3														
48.110	129.883	2077	401.1(530)	1.3239	28.836	2177											
48.110	18.784	1268	181.9(311)	1.3628	28.836	1724	1.919	3312	1.841	0.91542	33.583	0.1432	4146	47.118	123.5		
COMBUSTOR	0	22	15 6														
48.769	136.471	2072	399.7(529)	1.3241	28.836	2175											
48.769	15.499	1186	160.6(290)	1.3680	28.836	1672	2.068	3459	1.837	0.84372	33.583	0.1554	4227	45.349	125.9		
COMBUSTOR	0	23	16 6														
49.299	146.181	2068	398.5(528)	1.3243	28.836	2173											
49.299	13.060	1109	141.0(270)	1.3728	28.836	1620	2.216	3589	1.832	0.78908	33.583	0.1662	4302	44.017	128.1		
COMBUSTOR	0	24	17 12														
50.709	213.711	2056	395.1(524)	1.3247	28.836	2167											
50.709	7.795	860	78.9(208)	1.3873	28.836	1435	2.773	3978	1.804	0.67251	33.583	0.1950	4541	41.574	135.2		
COMBUSTOR	0	25	18 202														
52.809	85.463	2114	388.4(543)	1.3219	28.760	2198											
52.809	47.800	1852	309.3(464)	1.3324	28.760	2054	0.969	1990	1.883	0.55304	33.695	0.2379	4996	17.102	148.3	0.02	1.00
COMBUSTOR	0	26	19 200														
53.309	80.893	2109	387.1(541)	1.3220	28.760	2195											
53.309	51.583	1888	325.0(480)	1.3302	28.760	2084	0.846	1763	1.886	0.53044	33.695	0.2480	5123	14.531	152.0	0.02	1.00
COMBUSTOR	0	27	20 5														
54.049	66.070	2834	438.1(880)	1.2951	24.698	2718											
54.049	51.763	2680	384.0(826)	1.3002	24.699	2648	0.621	1646	2.269	0.50810	34.214	0.2629	5236	12.995	153.0	0.55	0.36
COMBUSTOR	0	28	21 2														
54.059	66.059	2836	438.1(880)	1.2950	24.700	2719											
54.059	51.765	2682	384.0(827)	1.3001	24.701	2649	0.621	1645	2.269	0.50772	34.214	0.2631	5238	12.983	153.1	0.55	0.36
COMBUSTOR	0	29	22 4														
54.819	65.262	2987	435.7(930)	1.2880	24.859	2774											
54.819	51.950	2837	382.7(878)	1.2930	24.860	2709	0.602	1630	2.282	0.48012	34.214	0.2782	5435	12.163	156.9	0.55	0.43
COMBUSTOR	0	30	23 4														
55.760	64.066	3255	432.5(1019)	1.2752	25.147	2864											
55.760	51.261	3101	376.5(965)	1.2805	25.148	2802	0.597	1674	2.301	0.45033	34.214	0.2966	5675	11.714	165.9	0.55	0.55
COMBUSTOR	0	31	24 5														
56.234	60.966	3293	472.8(1190)	1.2775	21.718	3104											
56.234	50.914	3166	419.6(1138)	1.2819	21.719	3048	0.535	1632	2.595	0.36889	34.734	0.3676	6556	9.356	188.8	1.07	0.35
COMBUSTOR	0	32	25 2														
56.244	60.955	3297	472.8(1191)	1.2774	21.721	3105											
56.244	50.906	3170	419.5(1139)	1.2818	21.722	3049	0.535	1633	2.595	0.36862	34.734	0.3679	6559	9.354	188.9	1.07	0.35
COMBUSTOR	0	33	26 4														
56.299	60.404	3478	472.6(1261)	1.2683	21.888	3166											
56.299	49.633	3336	411.9(1203)	1.2734	21.890	3106	0.561	1743	2.609	0.36745	34.734	0.3691	6574	9.956	189.5	1.07	0.40
COMBUSTOR	0	34	27 3														
56.439	60.314	3513	472.1(1275)	1.2665	21.922	3177											
56.439	49.582	3371	411.0(1216)	1.2717	21.924	3118	0.561	1749	2.611	0.36501	34.734	0.3715	6606	9.921	190.2	1.07	0.41
COMBUSTOR	0	35	28 9														
56.519	61.317	3476	471.8(1260)	1.2684	21.888	3165											
56.519	50.705	3338	413.1(1204)	1.2734	21.890	3107	0.552	1715	2.607	0.36903	34.734	0.3675	6624	9.836	190.7	1.07	0.40
COMBUSTOR	0	36	29 4														
56.799	61.444	3607	470.9(1311)	1.2616	22.013	3206											
56.799	50.500	3462	408.3(1252)	1.2670	22.016	3147	0.562	1770	2.616	0.36774	34.734	0.3688	6680	10.114	192.3	1.07	0.43
COMBUSTOR	0	37	30 4														
57.025	61.193	3837	470.0(1402)	1.2467	22.237	3273											
57.025	49.370	3676	398.0(1335)	1.2552	22.244	3211	0.591	1699	2.629	0.36712	34.734	0.3694	6721	10.834	195.5	1.07	0.50

READING = 0097 BLOCK = 236 TIME = 322.014 MACH 5.2 PI = 416.999 TI = 2211.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	n	A/AC	MOPTH	G	IVAC	PHI	ETAC
COMBUSTOR 0 38 31 5																	
57.749	59.699	4409	467.4(1628)	1.2095	22.623	3408											
57.749	45.750	4210	366.4(1503)	1.2190	22.655	3341	0.673	2248	2.657	0.36136	34.734	0.3753	6824	12.625	196.5	1.07	0.67
COMBUSTOR 0 39 32 3																	
58.769	60.563	4379	463.5(1616)	1.2119	22.802	3402											
58.769	47.175	4194	370.3(1537)	1.2207	22.829	3339	0.647	2161	2.655	0.35906	34.734	0.3777	6896	12.056	198.5	1.07	0.66
COMBUSTOR 0 40 33 5																	
60.779	60.301	4825	455.5(1794)	1.1714	23.286	3474											
60.779	42.300	4596	313.3(1695)	1.1799	23.390	3395	0.786	2667	2.667	0.37155	34.734	0.3650	6834	15.402	196.7	1.07	0.84
COMBUSTOR 0 41 34 5																	
62.199	60.357	4986	449.6(1859)	1.1584	23.465	3498											
62.199	36.806	4689	247.7(1729)	1.1660	23.643	3391	0.937	3178	2.667	0.38162	34.734	0.3553	6781	18.847	195.2	1.07	0.96
SONIC THROAT 42 35 202																	
62.199	63.741	5026	449.6(1875)	1.1579	23.504	3509											
62.199	36.806	4694	224.9(1730)	1.1676	23.702	3391	0.989	3353	2.660	0.38162	34.734	0.3553	6970	19.886	200.7	1.07	1.00
COMBUSTOR REGEN 43 36 6																	
62.199	60.357	4981	445.6(1857)	1.1586	23.470	3497											
62.199	37.045	4688	246.5(1728)	1.1661	23.645	3390	0.931	3156	2.666	0.38162	34.734	0.3553	6779	18.719	195.2	1.07	0.96
NOZZLE AE 44 37 4																	
87.275	60.357	4986	449.6(1861)	1.1584	23.465	3498											
87.275	1.586	2689	-717.1(904)	1.2725	23.997	2662	2.870	7640	2.667	0.07000	34.734	1.9372	9035	6.312	260.1	1.07	0.96
NOZZLE PO 45 38 4																	
87.275	60.357	4986	449.6(1861)	1.1584	23.465	3498											
87.275	0.632	2198	-902.7(719)	1.2884	23.997	2422	3.396	8226	2.667	0.03673	34.734	3.6919	9478	4.696	272.9	1.07	0.96
NOZZLE AE REGEN 46 39 4																	
87.275	60.357	4981	445.6(1857)	1.1586	23.470	3497											
87.275	1.583	2682	-719.7(902)	1.2727	23.997	2659	2.871	7636	2.666	0.07000	34.734	1.9372	9029	6.307	260.0	1.07	0.96
NOZZLE PO REGEN 47 40 4																	
87.275	60.357	4981	445.6(1857)	1.1586	23.470	3497											
87.275	0.632	2193	-904.5(717)	1.2886	23.997	2420	3.397	8219	2.666	0.03678	34.734	3.6868	9470	4.698	272.7	1.07	0.96
FICTIVE COMBUSTR 69 62 0																	
62.199	204.302	5146	449.6(1924)	1.1696	23.631	3558											
62.199	0.632	1645	-1101.1(520)	1.3139	23.997	2116	4.163	8809	2.562	0.05256	34.734	2.5802	9927	7.195	285.8	1.07	1.00
FICTIVE NOZZLE 70 63 0																	
87.275	57.383	4898	380.9(1820)	1.1616	23.539	3467											
87.275	1.572	2617	-744.5(877)	1.2745	23.997	2629	2.854	7504	2.657	0.07001	34.734	1.9371	8881	6.164	255.7	1.07	0.96

XABS	P-18	P-06	PDA	QDA	Q-18	Q-08	CAWALL	P-18/PS0	P-18/P10	P-06/PS0	P-08/P10
6.981E-01	1.375E 00	0.000	-5.292E-01	0.000	0.000	0.000	2.470E-02	2.175E 00	3.297E-03	0.000	0.000
1.836E 01	1.375E 00	0.000	-4.574E 01	0.000	0.000	0.000	1.034E 02	2.175E 00	3.297E-03	0.000	0.000
3.070E 01	2.525E 00	0.000	-2.038E 02	0.000	0.000	0.000	5.053E 02	3.995E 00	6.055E-03	0.000	0.000
3.508E 01	4.238E 00	0.000	-4.230E 02	0.000	0.000	0.000	6.804E 02	6.705E 00	1.016E-02	0.000	0.000
3.518E 01	4.280E 00	6.049E 00	-4.903E 02	0.000	0.000	0.000	6.847E 02	6.771E 00	1.026E-02	9.570E 00	1.451E-02
3.518E 01	4.282E 00	6.026E 00	-4.903E 02	0.000	0.000	0.000	6.850E 02	6.775E 00	1.027E-02	9.534E 00	1.445E-02
3.555E 01	4.440E 00	4.620E 00	-4.987E 02	0.000	0.000	0.000	7.218E 02	7.025E 00	1.065E-02	7.309E 00	1.108E-02
3.585E 01	4.349E 00	3.475E 00	-5.114E 02	-2.750E 02	-2.750E 02	0.000	7.521E 02	6.881E 00	1.043E-02	5.498E 00	8.333E-03
3.606E 01	4.285E 00	4.820E 00	-5.204E 02	-2.764E 02	-2.784E 02	0.000	7.736E 02	6.779E 00	1.028E-02	7.625E 00	1.156E-02
3.648E 01	4.847E 00	7.495E 00	-5.341E 02	-2.852E 02	-2.852E 02	0.000	8.174E 02	7.668E 00	1.162E-02	1.186E 01	1.797E-02
3.701E 01	4.597E 00	1.087E 01	-5.485E 02	-3.369E 02	-2.942E 02	-4.264E 01	8.754E 02	7.274E 00	1.103E-02	1.720E 01	2.607E-02
3.731E 01	6.026E 00	1.277E 01	-5.575E 02	-3.557E 02	-2.996E 02	-5.612E 01	9.055E 02	9.534E 00	1.445E-02	2.021E 01	3.064E-02
3.803E 01	9.472E 00	1.625E 01	-6.115E 02	-4.011E 02	-3.131E 02	-8.800E 01	9.843E 02	1.499E 01	2.272E-02	2.571E 01	3.896E-02
3.833E 01	1.248E 01	1.769E 01	-6.382E 02	-4.204E 02	-3.193E 02	-1.011E 02	1.018E 03	1.974E 01	2.992E-02	2.798E 01	4.242E-02
3.875E 01	1.671E 01	1.866E 01	-6.832E 02	-4.488E 02	-3.293E 02	-1.196E 02	1.065E 03	2.644E 01	4.008E-02	2.953E 01	4.475E-02
3.880E 01	1.720E 01	1.877E 01	-6.880E 02	-4.522E 02	-3.305E 02	-1.217E 02	1.071E 03	2.722E 01	4.125E-02	2.970E 01	4.502E-02
3.901E 01	1.932E 01	1.891E 01	-7.073E 02	-4.670E 02	-3.362E 02	-1.309E 02	1.095E 03	3.057E 01	4.634E-02	2.992E 01	4.535E-02
3.931E 01	1.903E 01	1.910E 01	-7.304E 02	-4.888E 02	-3.449E 02	-1.439E 02	1.129E 03	3.010E 01	4.563E-02	3.022E 01	4.580E-02
3.950E 01	1.884E 01	1.422E 01	-7.425E 02	-5.031E 02	-3.510E 02	-1.521E 02	1.151E 03	2.980E 01	4.517E-02	2.250E 01	3.411E-02
3.980E 01	1.998E 01	6.600E 00	-7.673E 02	-5.260E 02	-3.612E 02	-1.648E 02	1.186E 03	3.161E 01	4.791E-02	1.044E 01	1.583E-02
4.000E 01	2.075E 01	6.648E 00	-7.887E 02	-5.419E 02	-3.687E 02	-1.732E 02	1.210E 03	3.282E 01	4.975E-02	1.052E 01	1.594E-02
4.040E 01	2.382E 01	6.743E 00	-8.314E 02	-5.743E 02	-3.846E 02	-1.897E 02	1.257E 03	3.769E 01	5.713E-02	1.067E 01	1.617E-02
4.041E 01	2.390E 01	6.745E 00	-8.324E 02	-5.752E 02	-3.851E 02	-1.901E 02	1.258E 03	3.781E 01	5.732E-02	1.067E 01	1.618E-02
4.129E 01	3.070E 01	6.955E 00	-9.377E 02	-6.558E 02	-4.247E 02	-2.310E 02	1.362E 03	4.857E 01	7.363E-02	1.100E 01	1.668E-02
4.136E 01	3.120E 01	6.970E 00	-9.460E 02	-6.623E 02	-4.279E 02	-2.344E 02	1.370E 03	4.936E 01	7.482E-02	1.103E 01	1.672E-02
4.150E 01	3.229E 01	7.589E 00	-9.640E 02	-6.766E 02	-4.349E 02	-2.417E 02	1.387E 03	5.108E 01	7.743E-02	1.201E 01	1.820E-02
4.246E 01	1.954E 01	1.180E 01	-1.034E 03	-7.781E 02	-4.858E 02	-2.924E 02	1.502E 03	3.091E 01	4.685E-02	1.867E 01	2.830E-02
4.408E 01	2.535E 01	1.890E 01	-1.063E 03	-9.597E 02	-5.722E 02	-3.875E 02	1.698E 03	4.010E 01	6.079E-02	2.990E 01	4.532E-02
4.431E 01	2.618E 01	1.952E 01	-1.067E 03	-9.855E 02	-5.841E 02	-4.014E 02	1.726E 03	4.142E 01	6.278E-02	3.088E 01	4.681E-02
4.479E 01	2.792E 01	2.082E 01	-1.078E 03	-1.034E 03	-6.085E 02	-4.256E 02	1.785E 03	4.417E 01	6.694E-02	3.294E 01	4.992E-02
4.480E 01	2.794E 01	2.083E 01	-1.078E 03	-1.035E 03	-6.088E 02	-4.259E 02	1.786E 03	4.420E 01	6.700E-02	3.296E 01	4.996E-02
4.552E 01	2.488E 01	2.276E 01	-1.078E 03	-1.094E 03	-6.448E 02	-4.494E 02	1.874E 03	3.937E 01	5.967E-02	3.601E 01	5.459E-02
4.626E 01	2.173E 01	2.275E 01	-1.050E 03	-1.148E 03	-6.821E 02	-4.661E 02	1.965E 03	3.438E 01	5.211E-02	3.599E 01	5.455E-02
4.731E 01	1.727E 01	2.273E 01	-9.863E 02	-1.225E 03	-7.356E 02	-4.894E 02	2.095E 03	2.732E 01	4.141E-02	3.595E 01	5.450E-02
4.732E 01	1.720E 01	2.272E 01	-9.858E 02	-1.226E 03	-7.360E 02	-4.896E 02	2.096E 03	2.721E 01	4.124E-02	3.595E 01	5.450E-02
4.811E 01	1.076E 01	2.594E 01	-9.092E 02	-1.264E 03	-7.768E 02	-5.072E 02	2.195E 03	1.703E 01	2.581E-02	4.103E 01	6.220E-02
4.877E 01	2.861E 01	2.861E 01	-8.197E 02	-1.333E 03	-8.111E 02	-5.221E 02	2.277E 03	4.527E 01	6.861E-02	4.527E 01	6.861E-02
4.930E 01	3.076E 01	3.076E 01	-7.377E 02	-1.373E 03	-8.389E 02	-5.341E 02	2.344E 03	4.867E 01	7.377E-02	4.867E 01	7.377E-02
5.071E 01	3.797E 01	3.797E 01	-4.836E 02	-1.485E 03	-9.136E 02	-5.715E 02	2.521E 03	6.007E 01	9.105E-02	6.007E 01	9.105E-02
5.281E 01	4.780E 01	4.780E 01	-1.147E 01	-1.667E 03	-1.027E 03	-6.398E 02	2.788E 03	7.562E 01	1.146E-01	7.562E 01	1.146E-01
5.331E 01	5.158E 01	5.158E 01	1.177E 02	-1.713E 03	-1.055E 03	-6.577E 02	2.851E 03	8.161E 01	1.237E-01	8.161E 01	1.237E-01
5.405E 01	5.176E 01	5.176E 01	3.150E 02	-1.784E 03	-1.096E 03	-6.883E 02	2.946E 03	8.189E 01	1.241E-01	8.189E 01	1.241E-01
5.406E 01	5.177E 01	5.177E 01	3.177E 02	-1.785E 03	-1.097E 03	-6.887E 02	2.947E 03	8.190E 01	1.241E-01	8.190E 01	1.241E-01
5.482E 01	5.195E 01	5.195E 01	5.187E 02	-1.866E 03	-1.139E 03	-7.270E 02	3.045E 03	8.219E 01	1.246E-01	8.219E 01	1.246E-01
5.576E 01	5.126E 01	5.126E 01	7.622E 02	-1.977E 03	-1.192E 03	-7.842E 02	3.166E 03	8.110E 01	1.229E-01	8.110E 01	1.229E-01
5.623E 01	5.091E 01	5.091E 01	1.645E 03	-2.033E 03	-1.216E 03	-8.172E 02	3.208E 03	8.055E 01	1.221E-01	8.055E 01	1.221E-01
5.624E 01	5.091E 01	5.091E 01	1.649E 03	-2.034E 03	-1.216E 03	-8.179E 02	3.209E 03	8.054E 01	1.221E-01	8.054E 01	1.221E-01
5.630E 01	4.840E 01	5.087E 01	1.663E 03	-2.041E 03	-1.219E 03	-8.219E 02	3.216E 03	7.657E 01	1.161E-01	8.048E 01	1.220E-01
5.644E 01	4.840E 01	5.076E 01	1.696E 03	-2.057E 03	-1.225E 03	-8.323E 02	3.234E 03	7.657E 01	1.161E-01	8.031E 01	1.217E-01
5.652E 01	5.071E 01	5.071E 01	1.717E 03	-2.067E 03	-1.228E 03	-8.384E 02	3.244E 03	8.022E 01	1.216E-01	8.022E 01	1.216E-01
5.680E 01	5.050E 01	5.050E 01	1.783E 03	-2.100E 03	-1.240E 03	-8.603E 02	3.280E 03	7.990E 01	1.211E-01	7.990E 01	1.211E-01
5.702E 01	4.937E 01	4.937E 01	1.831E 03	-2.129E 03	-1.250E 03	-8.788E 02	3.309E 03	7.811E 01	1.184E-01	7.811E 01	1.184E-01
5.775E 01	4.575E 01	4.575E 01	1.960E 03	-2.222E 03	-1.281E 03	-9.405E 02	3.402E 03	7.238E 01	1.097E-01	7.238E 01	1.097E-01
5.877E 01	4.717E 01	4.717E 01	2.068E 03	-2.355E 03	-1.325E 03	-1.030E 03	3.532E 03	7.464E 01	1.131E-01	7.464E 01	1.131E-01
6.078E 01	4.230E 01	4.230E 01	2.078E 03	-2.636E 03	-1.415E 03	-1.221E 03	3.790E 03	6.692E 01	1.014E-01	6.692E 01	1.014E-01
6.220E 01	3.681E 01	3.681E 01	2.078E 03	-2.841E 03	-1.484E 03	-1.356E 03	3.972E 03	5.823E 01	8.826E-02	5.823E 01	8.826E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PIO	P-OB/P80	P-OB/PIO
6.466E 01	2.806E 01	2.806E 01	2.078E 03	-3.215E 03	-1.629E 03	-1.586E 03	4.289E 03	4.440E 01	6.729E-02	4.440E 01	6.729E-02
6.504E 01	2.532E 01	2.673E 01	2.078E 03	-3.275E 03	-1.653E 03	-1.622E 03	4.337E 03	4.007E 01	6.073E-02	4.228E 01	6.409E-02
6.508E 01	2.532E 01	2.658E 01	2.078E 03	-3.281E 03	-1.656E 03	-1.625E 03	4.342E 03	4.007E 01	6.073E-02	4.206E 01	6.375E-02
6.528E 01	2.386E 01	2.587E 01	2.078E 03	-3.312E 03	-1.669E 03	-1.643E 03	4.368E 03	3.775E 01	5.722E-02	4.094E 01	6.205E-02
6.694E 01	1.170E 01	1.064E 01	2.279E 03	-3.536E 03	-1.768E 03	-1.768E 03	4.583E 03	1.851E 01	2.806E-02	1.683E 01	2.551E-02
6.761E 01	9.039E 00	1.072E 01	2.492E 03	-3.617E 03	-1.802E 03	-1.815E 03	4.665E 03	1.430E 01	2.168E-02	1.696E 01	2.570E-02
6.838E 01	5.980E 00	8.647E 00	2.727E 03	-3.714E 03	-1.838E 03	-1.875E 03	4.760E 03	9.461E 00	1.434E-02	1.368E 01	2.074E-02
6.910E 01	5.062E 00	6.710E 00	2.896E 03	-3.809E 03	-1.869E 03	-1.940E 03	4.848E 03	8.009E 00	1.214E-02	1.062E 01	1.609E-02
6.971E 01	4.285E 00	5.631E 00	3.013E 03	-3.884E 03	-1.891E 03	-1.993E 03	4.922E 03	6.779E 00	1.028E-02	8.908E 00	1.350E-02
7.066E 01	3.077E 00	3.950E 00	3.146E 03	-3.970E 03	-1.923E 03	-2.047E 03	5.036E 03	4.868E 00	7.379E-03	6.249E 00	9.472E-03
7.109E 01	2.530E 00	3.643E 00	3.193E 03	-4.000E 03	-1.936E 03	-2.063E 03	5.088E 03	4.003E 00	6.067E-03	5.763E 00	8.736E-03
7.262E 01	1.920E 00	2.550E 00	3.318E 03	-4.098E 03	-1.978E 03	-2.121E 03	5.273E 03	3.037E 00	4.604E-03	4.034E 00	6.115E-03
7.277E 01	1.860E 00	2.924E 00	3.327E 03	-4.108E 03	-1.981E 03	-2.126E 03	5.290E 03	2.943E 00	4.460E-03	4.626E 00	7.012E-03
7.352E 01	2.574E 00	4.795E 00	3.438E 03	-4.159E 03	-1.999E 03	-2.160E 03	5.374E 03	4.072E 00	6.173E-03	7.586E 00	1.150E-02
7.352E 01	2.578E 00	4.805E 00	3.447E 03	-4.159E 03	-1.999E 03	-2.160E 03	5.375E 03	4.078E 00	6.182E-03	7.602E 00	1.152E-02
7.485E 01	3.840E 00	0.000	3.515E 03	-4.256E 03	-2.026E 03	-2.230E 03	5.426E 03	6.075E 00	9.209E-03	0.000	0.000
7.770E 01	5.440E 00	0.000	3.700E 03	-5.055E 03	-2.076E 03	-2.979E 03	5.525E 03	8.607E 00	1.305E-02	0.000	0.000
8.160E 01	8.540E 00	0.000	3.999E 03	-5.106E 03	-2.127E 03	-2.979E 03	5.630E 03	1.351E 01	2.048E-02	0.000	0.000
8.441E 01	6.970E 00	0.000	4.171E 03	-5.151E 03	-2.172E 03	-2.979E 03	5.684E 03	1.103E 01	1.671E-02	0.000	0.000
8.727E 01	8.800E 00	0.000	4.361E 03	-5.227E 03	-2.248E 03	-2.979E 03	5.707E 03	1.392E 01	2.110E-02	0.000	0.000
8.727E 01	8.804E 00	0.000	4.362E 03	-5.227E 03	-2.248E 03	-2.979E 03	5.707E 03	1.393E 01	2.111E-02	0.000	0.000

X	DDRAG	CDRAG	CF	FC
4.040E 01	1.182E 02	1.182E 02	2.176E-03	4.916E-02
4.041E 01	1.697E-01	1.184E 02	2.188E-03	5.219E-02
4.129E 01	1.490E 01	1.333E 02	2.296E-03	5.552E-02
4.136E 01	1.098E 00	1.344E 02	2.303E-03	5.565E-02
4.150E 01	2.385E 00	1.368E 02	2.321E-03	5.659E-02
4.246E 01	1.604E 01	1.528E 02	2.388E-03	5.767E-02
4.408E 01	2.636E 01	1.792E 02	2.416E-03	5.676E-02
4.431E 01	3.680E 00	1.828E 02	2.424E-03	5.686E-02
4.479E 01	7.700E 00	1.905E 02	2.441E-03	5.705E-02
4.480E 01	9.762E-02	1.906E 02	2.441E-03	5.705E-02
4.552E 01	1.134E 01	2.020E 02	2.454E-03	5.624E-02
4.626E 01	1.144E 01	2.134E 02	2.434E-03	5.341E-02
4.731E 01	1.555E 01	2.290E 02	2.383E-03	4.853E-02
4.732E 01	1.140E-01	2.291E 02	2.383E-03	4.829E-02
4.811E 01	1.110E 01	2.402E 02	2.316E-03	4.340E-02
4.877E 01	8.668E 00	2.489E 02	2.232E-03	3.817E-02
4.930E 01	6.508E 00	2.554E 02	2.150E-03	3.408E-02
5.071E 01	1.522E 01	2.706E 02	1.856E-03	2.443E-02
5.281E 01	1.727E 01	2.878E 02	2.564E-03	5.512E-02
5.331E 01	2.625E 00	2.905E 02	2.644E-03	5.104E-02
5.405E 01	3.800E 00	2.943E 02	3.197E-03	4.115E-02
5.406E 01	5.205E-02	2.943E 02	3.070E-03	4.374E-02
5.482E 01	3.744E 00	2.981E 02	3.046E-03	4.316E-02
5.576E 01	4.407E 00	3.025E 02	3.058E-03	4.211E-02
5.623E 01	1.434E 00	3.039E 02	3.331E-03	3.575E-02
5.624E 01	3.866E-02	3.039E 02	3.145E-03	3.902E-02
5.630E 01	2.130E-01	3.042E 02	3.116E-03	4.039E-02
5.644E 01	5.549E-01	3.047E 02	3.166E-03	3.938E-02
5.652E 01	3.377E-01	3.051E 02	3.514E-03	3.352E-02
5.680E 01	1.184E 00	3.062E 02	3.141E-03	4.031E-02
5.702E 01	9.486E-01	3.072E 02	3.141E-03	4.122E-02
5.775E 01	3.399E 00	3.106E 02	3.116E-03	4.329E-02
5.877E 01	5.191E 00	3.157E 02	3.270E-03	3.992E-02
6.078E 01	1.138E 01	3.271E 02	3.159E-03	4.391E-02
6.220E 01	9.950E 00	3.371E 02	3.219E-03	4.326E-02
6.466E 01	2.143E 01	3.817E 02	3.305E-03	4.184E-02
6.504E 01	3.659E 00	3.854E 02	3.293E-03	4.080E-02
6.508E 01	3.935E-01	3.858E 02	3.293E-03	4.076E-02
6.528E 01	1.976E 00	3.878E 02	3.288E-03	4.012E-02
6.694E 01	1.574E 01	4.035E 02	3.184E-03	2.609E-02
6.761E 01	5.478E 00	4.090E 02	3.163E-03	2.406E-02
6.838E 01	5.818E 00	4.148E 02	3.113E-03	1.961E-02
6.910E 01	4.785E 00	4.196E 02	3.074E-03	1.680E-02
6.971E 01	3.654E 00	4.232E 02	3.052E-03	1.467E-02
7.066E 01	4.937E 00	4.282E 02	3.009E-03	1.157E-02
7.109E 01	1.962E 00	4.301E 02	2.991E-03	1.050E-02
7.262E 01	6.094E 00	4.362E 02	2.944E-03	8.220E-03
7.277E 01	5.260E-01	4.368E 02	2.952E-03	8.652E-03
7.352E 01	3.005E 00	4.396E 02	3.002E-03	1.195E-02
7.352E 01	6.487E-03	4.396E 02	3.002E-03	1.194E-02
7.485E 01	2.099E 00	4.419E 02	3.000E-03	1.226E-02
7.770E 01	4.414E 00	4.463E 02	3.035E-03	1.571E-02
8.160E 01	5.747E 00	4.520E 02	3.086E-03	2.141E-02
8.441E 01	3.150E 00	4.552E 02	3.042E-03	1.853E-02
8.727E 01	1.313E 00	4.565E 02	3.066E-03	2.166E-02
8.727E 01	0.000	4.565E 02	3.066E-03	2.166E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	3586.	(LBF)
MEASURED THRUST	3849.	(LBF)
CALCULATED SPECIFIC IMPULSE	3399.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3649.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	1.2151	
MEASURED THRUST COEFFICIENT	1.3044	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	8875.	(LBF)
NET THRUST	3579.	(LBF)
SPECIFIC IMPULSE	3393.	(LBF-SEC/LBM)
THRUST COEFFICIENT	1.2130	

MOMENTUM AND FORCES

INLET FRICTION DRAG	118.2	(LBF)
INLET MOMENTUM CHANGE	-949.7	(LBF)
COMBUSTOR FRICTION DRAG	218.9	(LBF)
COMBUSTOR STRUT DRAG	175.27	(LBF)
COMBUSTOR MOMENTUM CHANGE	2435.	(LBF)
NOZZLE FRICTION DRAG	96.18	(LBF)
NOZZLE STRUT DRAG	86.42	(LBF)
NOZZLE MOMENTUM CHANGE	2101.	(LBF)
NOZZLE PRESSURE INTEGRAL	2283.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1475.	(LBF)
TOTAL STRUT DRAG	261.68	(LBF)
CAVITY FORCE	-1222.	(LBF)
CALCULATED LOAD CELL FORCE	889.	(LBF)
MEASURED LOAD CELL FORCE	1152.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-155.3, 0.0,	

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8643	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2876	
DELTA PT2	0.1406	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4899	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2925	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9129	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9206	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9283	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8921	
ENTHALPY AT P0 - SUPERSONIC	-20.76	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-3.49	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0313
EQUIVALENCE RATIO	1.075
COMBUSTOR EFFICIENCY	0.961
TOTAL PRESSURE RATIO	0.2954
COMBUSTOR EFFECTIVENESS	0.9194
INJECTOR DISCHARGE COEFFICIENTS	0.7340, 0.6900,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9829
NOZZLE COEFFICIENT - CT	0.9039
PROCESS EFFICIENCY	1.0264
KINETIC ENERGY EFFICIENCY	0.9630

STATIONS

NOMINAL COWL LEADING EDGE	34.684	(IN)
SPIKE TRANSLATION	0.2969	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.183	(IN)
NOZZLE SHROUD TRAILING EDGE	73.525	(IN)
NOZZLE PLUG TRAILING EDGE	87.275	(IN)
STRUT LEADING EDGE	56.439	(IN)
STRUT TRAILING EDGE	65.039	(IN)
COMBUSTOR EXIT	62.199	(IN)

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.284	
1C	44.300	
2A	48.759	
2C	46.250	
3A	54.049	E
3B	56.234	E
4	44.784	

Reading 97

t = 325.61 sec.

Test cell pressure was high which resulted in increased pressures in the AIM nozzle.

READING = 0097 BLOCK = 240 TIME = 325.614 MACH 5.2 PI = 416.249 TI = 2209.9 2/27/75 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y   R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	NUPIN	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 4														
0.000	416.249	2210	438.8(568)	1.3193	28.837	2242											
0.000	0.586	372	-39.9(90)	1.3982	28.836	947	5.170	4894	1.779	0.14406	31.890	0.8643	4981	10.957	156.2		
SPIKE TIP NS		2	0 6														
0.600	21.637	2210	438.6(568)	1.3193	28.836	2242											
0.600	19.670	2159	424.4(554)	1.3211	28.836	2218	0.362	848	1.982	0.14406	31.890	0.8643	5194	1.897	162.9		
WIND TUNNEL		3	0 0														
0.000	416.249	2210	438.8(568)	1.3193	28.837	2242											
0.000	0.633	380	-37.9(91)	1.3984	28.836	957	5.104	4884	1.779	0.15180	33.602	0.8643	5241	11.521	156.0		
SPIKE TIP NS		4	0 0														
0.600	21.637	2210	438.8(568)	1.3193	28.836	2242											
0.600	19.421	2153	422.5(552)	1.3213	28.836	2215	0.407	902	1.982	0.15180	33.602	0.8643	5241	2.127	156.0		
INLET THROAT		5	0 4														
40.400	227.832	2149	421.5(551)	1.3214	28.837	2213											
40.400	17.881	1117	143.2(273)	1.3723	28.836	1626	2.295	3732	1.812	1.11439	33.602	0.1117	4409	68.099	131.2		
INLET UPNNBK		6	0 3														
40.400	227.832	2149	421.5(551)	1.3214	28.837	2213											
40.400	16.631	1096	137.7(267)	1.3736	28.836	1611	2.340	3769	1.812	1.06750	33.602	0.1229	4459	62.520	132.7		
INLET DNNNBK		7	0 4														
40.400	124.228	2149	421.5(551)	1.3214	28.836	2213											
40.400	104.156	2059	396.0(525)	1.3246	28.836	2168	0.521	1131	1.854	1.06750	33.602	0.1229	4459	18.757	132.7		
COMBUSTOR	0	8	1 2														
40.410	228.206	2149	421.5(551)	1.3214	28.837	2213											
40.410	19.520	1144	149.9(279)	1.3706	28.836	1644	2.242	3686	1.812	1.17410	33.602	0.1117	4409	67.264	131.2		
COMBUSTOR	0	9	2 4														
41.294	209.259	2140	419.1(548)	1.3217	28.837	2209											
41.294	20.782	1185	160.6(290)	1.3680	28.836	1672	2.151	3596	1.817	1.17661	33.602	0.1115	4350	65.763	129.4		
COMBUSTOR	0	10	3 4														
41.359	207.872	2140	418.9(548)	1.3217	28.837	2208											
41.359	20.936	1189	161.6(291)	1.3677	28.836	1675	2.142	3588	1.817	1.17846	33.602	0.1113	4344	65.708	129.3		
COMBUSTOR	0	11	4 4														
41.500	204.061	2138	418.4(548)	1.3218	28.837	2207											
41.500	21.214	1199	164.0(293)	1.3672	28.836	1681	2.123	3568	1.818	1.17844	33.602	0.1113	4332	65.349	128.9		
COMBUSTOR	0	12	5 3														
42.460	191.152	2128	415.4(545)	1.3222	28.837	2202											
42.460	21.809	1222	170.1(299)	1.3657	28.836	1696	2.066	3504	1.822	1.16681	33.602	0.1124	4288	63.543	127.6		
COMBUSTOR	0	13	6 3														
44.079	180.776	2109	410.1(539)	1.3228	28.836	2193											
44.079	21.260	1220	169.5(299)	1.3658	28.836	1695	2.047	3470	1.823	1.12814	33.602	0.1163	4257	60.829	126.7		
COMBUSTOR	0	14	7 3														
44.310	178.693	2106	409.3(538)	1.3229	28.836	2192											
44.310	21.357	1224	170.4(300)	1.3656	28.836	1697	2.037	3457	1.823	1.12605	33.602	0.1165	4248	60.504	126.4		
COMBUSTOR	0	15	8 3														
44.794	174.401	2101	407.9(537)	1.3231	28.836	2189											
44.794	21.552	1231	172.4(302)	1.3651	28.836	1702	2.016	3433	1.824	1.12108	33.602	0.1170	4231	59.803	125.9		
COMBUSTOR	0	16	9 3														
44.800	174.317	2101	407.8(537)	1.3231	28.836	2189											
44.800	21.561	1232	172.5(302)	1.3651	28.836	1703	2.016	3432	1.824	1.12110	33.602	0.1170	4231	59.794	125.9		
COMBUSTOR	0	17	10 3														
45.519	170.368	2095	406.1(535)	1.3233	28.836	2186											
45.519	21.161	1229	171.8(301)	1.3652	28.836	1701	2.013	3424	1.825	1.10008	33.602	0.1193	4222	58.538	125.7		
COMBUSTOR	0	18	11 3														
46.260	170.030	2089	404.5(534)	1.3235	28.836	2183											
46.260	19.637	1202	164.6(294)	1.3670	28.836	1683	2.058	3464	1.824	1.05610	33.602	0.1242	4242	56.845	126.2		

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	M	A/AC	MOPTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
47.310	175.507	2081	402.3(531)	1.3238	28.836	2179											
47.310	16.965	1144	150.1(279)	1.3706	28.836	1644	2.160	3552	1.822	0.98285	33.602	0.1335	4290	54.261	127.7		
COMBUSTOR	0	20	13 3														
47.319	173.562	2081	402.2(531)	1.3238	28.836	2179											
47.319	16.947	1144	149.9(279)	1.3706	28.836	1644	2.161	3553	1.822	0.98241	33.602	0.1335	4291	54.247	127.7		
COMBUSTOR	0	21	14 4														
48.110	183.686	2075	400.5(530)	1.3240	28.836	2176											
48.110	14.380	1074	132.1(262)	1.3750	28.836	1595	2.297	3665	1.817	0.91596	33.602	0.1432	4355	52.164	129.6		
COMBUSTOR	0	22	15 8														
48.769	201.296	2070	399.1(528)	1.3242	28.836	2174											
48.769	11.770	988	110.7(240)	1.3802	28.836	1534	2.477	3799	1.810	0.84422	33.602	0.1554	4436	49.837	132.0		
COMBUSTOR	0	23	16 10														
49.299	226.025	2065	397.9(527)	1.3243	28.836	2172											
49.299	9.792	908	90.6(220)	1.3848	28.836	1472	2.664	3921	1.802	0.78955	33.602	0.1662	4512	48.116	134.3		
COMBUSTOR	0	24	17 12														
50.709	416.238	2053	394.5(524)	1.3248	28.837	2166											
50.709	5.383	642	25.4(155)	1.3964	28.836	1243	3.458	4298	1.758	0.67291	33.602	0.1950	4757	44.944	141.6		
COMBUSTOR	0	25	18 202														
52.809	98.264	2112	387.8(542)	1.3219	28.759	2197											
52.809	48.000	1769	291.9(447)	1.3349	28.759	2021	1.084	2190	1.873	0.55337	33.715	0.2379	5220	16.835	154.8	0.02	1.00
COMBUSTOR	0	26	19 200														
53.309	92.015	2107	386.4(541)	1.3221	28.759	2195											
53.309	51.317	1824	307.2(462)	1.3326	28.759	2050	0.971	1991	1.877	0.53076	33.715	0.2480	5346	16.420	158.6	0.02	1.00
COMBUSTOR	0	27	20 3														
54.049	68.353	3214	437.7(1006)	1.2774	25.079	2853											
54.049	52.436	3033	372.1(943)	1.2835	25.080	2778	0.652	1812	2.295	0.50843	34.236	0.2629	5459	14.316	159.4	0.55	0.52
COMBUSTOR	0	28	21 2														
54.059	68.345	3215	437.7(1007)	1.2773	28.080	2853											
54.059	52.451	3034	372.2(943)	1.2835	25.081	2778	0.652	1811	2.295	0.50804	34.236	0.2631	5461	14.297	159.5	0.55	0.52
COMBUSTOR	0	29	22 4														
54.819	67.810	3315	435.2(1040)	1.2724	25.193	2885											
54.819	53.600	3151	375.3(982)	1.2781	25.194	2819	0.614	1732	2.301	0.48043	34.236	0.2782	5663	12.933	165.4	0.55	0.57
COMBUSTOR	0	30	23 4														
55.760	66.372	3655	431.9(1155)	1.2547	25.576	2986											
55.760	52.435	3483	366.6(1094)	1.2611	25.581	2922	0.619	1808	2.321	0.45061	34.236	0.2966	5908	12.664	172.6	0.55	0.73
COMBUSTOR	0	31	24 5														
56.234	62.912	3730	471.9(1360)	1.2550	22.114	3244											
56.234	51.849	3585	408.3(1301)	1.2606	22.118	3187	0.559	1783	2.622	0.36914	34.757	0.3676	6809	10.231	195.9	1.08	0.47
COMBUSTOR	0	32	25 2														
56.244	62.899	3734	471.6(1362)	1.2548	22.116	3245											
56.244	51.837	3590	408.2(1302)	1.2603	22.122	3189	0.560	1784	2.623	0.36887	34.757	0.3679	6812	10.229	196.0	1.08	0.47
COMBUSTOR	0	33	26 4														
56.299	62.377	3914	471.6(1433)	1.2443	22.294	3295											
56.299	50.609	3756	400.2(1367)	1.2508	22.302	3236	0.584	1891	2.633	0.36770	34.757	0.3691	6826	10.805	196.4	1.08	0.52
COMBUSTOR	0	34	27 3														
56.439	62.267	3957	471.1(1450)	1.2416	22.338	3307											
56.439	50.523	3799	399.1(1384)	1.2482	22.347	3248	0.585	1899	2.636	0.36525	34.757	0.3715	6860	10.782	197.4	1.08	0.53
COMBUSTOR	0	35	28 21														
56.519	60.858	5046	470.9(1885)	1.1565	23.457	3517											
56.519	51.496	4946	400.3(1841)	1.1566	23.523	3460	0.540	1880	2.670	0.36928	34.757	0.3675	6877	10.787	197.9	1.08	1.00
COMBUSTOR	0	36	29 21														
56.799	61.200	5045	469.9(1885)	1.1566	23.459	3517											
56.799	51.150	4938	394.1(1838)	1.1589	23.530	3477	0.560	1947	2.669	0.36799	34.757	0.3688	6934	11.133	199.5	1.08	1.00
COMBUSTOR	0	37	30 21														
57.025	61.353	5044	469.0(1885)	1.1566	23.460	3516											
57.025	49.960	4922	382.5(1831)	1.1593	23.541	3472	0.599	2081	2.669	0.36737	34.757	0.3694	6975	11.882	200.7	1.08	1.00

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READING = 0097  BLOCK = 240  TIME = 325.614  MACH  5.2  PI = 416.249  TT = 2209.9

                 P      T      H            GAMMA  MOLWT SONV  MACH  VEL   S      W/A     F      A/AC    FUPIM   Q     IVAC  PHI  ETAC
COMBUSTOR        0   38   31  21
57.749      61.409 5042  466.4(1883) 1.1568 23.464 3515
57.749      46.150 4871  346.8(1908) 1.1668 23.574 3453 0.708 2446 2.668 0.36180 34.757 0.3753   7079 13.747 203.7 1.08 1.00
COMBUSTOR        0   39   32  21
58.769      62.018 5038  462.5(1882) 1.1571 23.470 3510
58.769      47.587 4880  351.6(1812) 1.1608 23.571 3457 0.682 2357 2.666 0.35930 34.757 0.3777   7149 13.159 205.7 1.08 1.00
COMBUSTOR        0   40   33 200
60.779      63.403 5032  354.5(1879) 1.1577 23.482 3512
60.779      42.525 4791  289.1(1773) 1.1640 23.631 3426 0.840 2677 2.663 0.37180 34.757 0.3650   7064 10.626 203.6 1.08 1.00
COMBUSTOR        0   41   34 200
62.199      64.895 5027  448.6(1877) 1.1582 23.492 3510
62.190      36.544 4679  213.9(1724) 1.1687 23.696 3387 1.012 3427 2.660 0.38188 34.757 0.3553   7028 20.336 202.2 1.08 1.00
COMBUSTOR  REGEN    42   35   7
62.199      64.895 4959  390.9(1846) 1.1615 23.559 3466
62.199      24.979 4361   17.8(1587) 1.1861 23.644 3287 1.315 4321 2.648 0.38188 34.757 0.3553   6941 25.643 199.7 1.08 1.00
NOZZLE   AE         43   36   4
87.275      64.895 5027  448.6(1904) 1.1582 23.492 3510
87.275       1.527 2614 -745.1( 876) 1.2747 23.978 2629 2.940 7729 2.660 0.07005 34.757 1.9372   9107  8.414 262.0 1.08 1.00
NOZZLE   PO         44   37   4
87.275      64.895 5027  448.6(1904) 1.1582 23.492 3510
87.275       0.633 2153 -910.6( 703) 1.2902 23.978 2400 3.446 8272 2.660 0.03770 34.757 3.5991   9519  4.647 273.9 1.08 1.00
NOZZLE   AE REGEN   45   38   4
87.275      64.895 4959  390.9(1846) 1.1615 23.559 3486
87.275       1.487 2522 -780.4( 841) 1.2774 23.978 2585 2.962 7656 2.648 0.07005 34.757 1.9372   9009  8.334 259.2 1.08 1.00
NOZZLE   PO REGEN   46   39   4
87.275      64.895 4959  390.9(1846) 1.1615 23.559 3486
87.275       0.633 2087 -943.3( 678) 1.2928 23.978 2365 3.455 8171 2.648 0.03843 34.757 3.5307   9399  4.880 270.4 1.08 1.00
FICTIVE COMBUSTR    68   61   0
62.199     227.832 5155  448.6(1929) 1.1710 23.627 3564
62.199       0.633 1600-1116.5( 505) 1.3165 23.978 2090 4.235 8850 2.554 0.05430 34.757 2.4993   9965  7.467 286.7 1.08 1.00
FICTIVE NOZZLE      69   62   0
87.275      80.286 5033  433.8(1878) 1.1611 23.533 3514
87.275       1.381 2421 -816.8( 803) 1.2806 23.976 2536 3.122 7917 2.639 0.07005 34.757 1.9371   9238  8.619 265.8 1.08 1.00
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XABB	P-IB	P-OB	PDA	QOX	Q-IH	Q-OB	CA-ALL	P-IB/PSU	P-IB/PIO	P-OB/PSU	P-OB/PIO
6.981E-01	1.360E 00	0.000	-5.292E-01	0.000	0.000	0.000	2.470E-02	2.182E 00	3.315E-03	0.000	0.000
1.836E 01	1.380E 00	0.000	-4.590E 01	0.000	0.000	0.000	1.634E 02	2.182E 00	3.315E-03	0.000	0.000
3.070E 01	2.540E 00	0.000	-2.048E 02	0.000	0.000	0.000	5.055E 02	4.015E 00	6.102E-03	0.000	0.000
3.508E 01	4.248E 00	0.000	-4.248E 02	0.000	0.000	0.000	6.604E 02	6.716E 00	1.021E-02	0.000	0.000
3.518E 01	4.296E 00	6.036E 00	-4.920E 02	0.000	0.000	0.000	6.847E 02	6.791E 00	1.032E-02	9.542E 00	1.450E-02
3.518E 01	4.299E 00	6.015E 00	-4.920E 02	0.000	0.000	0.000	6.850E 02	6.796E 00	1.033E-02	9.509E 00	1.445E-02
3.555E 01	4.480E 00	4.739E 00	-5.004E 02	0.000	0.000	0.000	7.218E 02	7.082E 00	1.076E-02	7.491E 00	1.138E-02
3.585E 01	4.377E 00	3.700E 00	-5.128E 02	-2.648E 02	-2.648E 02	0.000	7.521E 02	6.920E 00	1.052E-02	5.849E 00	8.889E-03
3.606E 01	4.305E 00	5.029E 00	-5.213E 02	-2.680E 02	-2.680E 02	0.000	7.738E 02	6.805E 00	1.034E-02	7.949E 00	1.208E-02
3.648E 01	4.871E 00	7.671E 00	-5.344E 02	-2.746E 02	-2.746E 02	0.000	8.174E 02	7.701E 00	1.170E-02	1.213E 01	1.843E-02
3.701E 01	4.665E 00	1.101E 01	-5.487E 02	-3.305E 02	-2.833E 02	-4.717E 01	8.734E 02	7.375E 00	1.121E-02	1.740E 01	2.644E-02
3.731E 01	6.098E 00	1.289E 01	-5.579E 02	-3.505E 02	-2.884E 02	-6.207E 01	9.055E 02	9.640E 00	1.465E-02	2.037E 01	3.096E-02
3.803E 01	9.555E 00	1.659E 01	-6.120E 02	-3.988E 02	-3.015E 02	-9.733E 01	9.843E 02	1.510E 01	2.295E-02	2.623E 01	3.986E-02
3.833E 01	1.252E 01	1.812E 01	-6.384E 02	-4.193E 02	-3.074E 02	-1.119E 02	1.018E 03	1.979E 01	3.008E-02	2.865E 01	4.354E-02
3.875E 01	1.670E 01	1.886E 01	-6.826E 02	-4.492E 02	-3.169E 02	-1.322E 02	1.065E 03	2.639E 01	4.011E-02	2.982E 01	4.532E-02
3.880E 01	1.718E 01	1.895E 01	-6.875E 02	-4.527E 02	-3.181E 02	-1.346E 02	1.071E 03	2.716E 01	4.128E-02	2.996E 01	4.553E-02
3.901E 01	1.927E 01	1.917E 01	-7.064E 02	-4.683E 02	-3.236E 02	-1.447E 02	1.095E 03	3.047E 01	4.631E-02	3.031E 01	4.606E-02
3.931E 01	1.901E 01	1.949E 01	-7.288E 02	-4.910E 02	-3.319E 02	-1.591E 02	1.129E 03	3.005E 01	4.567E-02	3.081E 01	4.682E-02
3.950E 01	1.884E 01	1.971E 01	-7.376E 02	-5.059E 02	-3.377E 02	-1.682E 02	1.151E 03	2.976E 01	4.526E-02	3.115E 01	4.734E-02
3.980E 01	1.994E 01	2.005E 01	-7.455E 02	-5.296E 02	-3.475E 02	-1.822E 02	1.186E 03	3.152E 01	4.790E-02	3.170E 01	4.817E-02
4.000E 01	2.068E 01	1.986E 01	-7.508E 02	-5.462E 02	-3.547E 02	-1.915E 02	1.210E 03	3.269E 01	4.968E-02	3.140E 01	4.772E-02
4.040E 01	2.379E 01	1.950E 01	-7.624E 02	-5.796E 02	-3.698E 02	-2.097E 02	1.257E 03	3.760E 01	5.714E-02	3.082E 01	4.684E-02
4.041E 01	2.386E 01	1.949E 01	-7.626E 02	-5.804E 02	-3.702E 02	-2.102E 02	1.258E 03	3.772E 01	5.733E-02	3.081E 01	4.682E-02
4.129E 01	3.073E 01	1.867E 01	-8.068E 02	-6.622E 02	-4.081E 02	-2.542E 02	1.362E 03	4.857E 01	7.381E-02	2.952E 01	4.486E-02
4.136E 01	3.123E 01	1.861E 01	-8.112E 02	-6.688E 02	-4.111E 02	-2.577E 02	1.370E 03	4.937E 01	7.503E-02	2.943E 01	4.472E-02
4.150E 01	3.232E 01	1.863E 01	-8.213E 02	-6.832E 02	-4.178E 02	-2.654E 02	1.387E 03	5.110E 01	7.766E-02	2.945E 01	4.475E-02
4.246E 01	1.950E 01	1.872E 01	-8.487E 02	-7.840E 02	-4.662E 02	-3.177E 02	1.502E 03	3.083E 01	4.685E-02	2.960E 01	4.498E-02
4.408E 01	2.534E 01	1.888E 01	-8.525E 02	-9.645E 02	-5.487E 02	-4.159E 02	1.698E 03	4.005E 01	6.087E-02	2.985E 01	4.536E-02
4.431E 01	2.617E 01	1.973E 01	-8.573E 02	-9.903E 02	-5.600E 02	-4.304E 02	1.726E 03	4.137E 01	6.287E-02	3.118E 01	4.739E-02
4.479E 01	2.792E 01	2.150E 01	-8.667E 02	-1.039E 03	-5.832E 02	-4.557E 02	1.785E 03	4.413E 01	6.706E-02	3.398E 01	5.165E-02
4.480E 01	2.794E 01	2.152E 01	-8.670E 02	-1.039E 03	-5.835E 02	-4.560E 02	1.786E 03	4.416E 01	6.712E-02	3.402E 01	5.170E-02
4.552E 01	2.490E 01	2.415E 01	-8.633E 02	-1.098E 03	-6.178E 02	-4.807E 02	1.874E 03	3.936E 01	5.982E-02	3.818E 01	5.802E-02
4.626E 01	2.176E 01	2.339E 01	-8.318E 02	-1.152E 03	-6.534E 02	-4.983E 02	1.965E 03	3.441E 01	5.229E-02	3.698E 01	5.620E-02
4.731E 01	1.732E 01	2.232E 01	-7.678E 02	-1.227E 03	-7.045E 02	-5.229E 02	2.095E 03	2.739E 01	4.162E-02	3.529E 01	5.363E-02
4.732E 01	1.725E 01	2.231E 01	-7.673E 02	-1.228E 03	-7.050E 02	-5.231E 02	2.096E 03	2.727E 01	4.145E-02	3.527E 01	5.360E-02
4.811E 01	1.084E 01	2.585E 01	-6.917E 02	-1.286E 03	-7.440E 02	-5.418E 02	2.195E 03	1.713E 01	2.604E-02	4.087E 01	6.211E-02
4.877E 01	2.880E 01	2.880E 01	-6.021E 02	-1.335E 03	-7.769E 02	-5.576E 02	2.277E 03	4.553E 01	6.920E-02	4.553E 01	6.920E-02
4.930E 01	3.117E 01	3.117E 01	-5.193E 02	-1.374E 03	-8.036E 02	-5.705E 02	2.344E 03	4.928E 01	7.489E-02	4.928E 01	7.489E-02
5.071E 01	3.904E 01	3.904E 01	-2.597E 02	-1.486E 03	-8.755E 02	-6.110E 02	2.521E 03	6.171E 01	9.378E-02	6.171E 01	9.378E-02
5.281E 01	4.800E 01	4.800E 01	2.194E 02	-1.670E 03	-9.853E 02	-6.849E 02	2.788E 03	7.588E 01	1.153E-01	7.588E 01	1.153E-01
5.331E 01	5.132E 01	5.132E 01	3.485E 02	-1.716E 03	-1.012E 03	-7.042E 02	2.851E 03	8.112E 01	1.233E-01	8.112E 01	1.233E-01
5.405E 01	5.244E 01	5.244E 01	5.466E 02	-1.769E 03	-1.052E 03	-7.372E 02	2.946E 03	8.289E 01	1.260E-01	8.289E 01	1.260E-01
5.406E 01	5.245E 01	5.245E 01	5.493E 02	-1.790E 03	-1.052E 03	-7.377E 02	2.947E 03	8.292E 01	1.260E-01	8.292E 01	1.260E-01
5.482E 01	5.360E 01	5.360E 01	7.548E 02	-1.873E 03	-1.093E 03	-7.794E 02	3.045E 03	8.473E 01	1.288E-01	8.473E 01	1.288E-01
5.576E 01	5.244E 01	5.244E 01	1.005E 03	-1.987E 03	-1.145E 03	-8.418E 02	3.166E 03	8.289E 01	1.260E-01	8.289E 01	1.260E-01
5.623E 01	5.185E 01	5.185E 01	1.907E 03	-2.046E 03	-1.168E 03	-8.779E 02	3.208E 03	8.196E 01	1.246E-01	8.196E 01	1.246E-01
5.624E 01	5.184E 01	5.184E 01	1.910E 03	-2.047E 03	-1.168E 03	-8.787E 02	3.209E 03	8.194E 01	1.245E-01	8.194E 01	1.245E-01
5.630E 01	4.945E 01	5.177E 01	1.925E 03	-2.054E 03	-1.171E 03	-8.831E 02	3.216E 03	7.817E 01	1.188E-01	8.184E 01	1.244E-01
5.644E 01	4.945E 01	5.160E 01	1.959E 03	-2.071E 03	-1.177E 03	-8.944E 02	3.234E 03	7.817E 01	1.188E-01	8.156E 01	1.240E-01
5.652E 01	5.150E 01	5.150E 01	1.980E 03	-2.081E 03	-1.180E 03	-9.009E 02	3.244E 03	8.141E 01	1.237E-01	8.141E 01	1.237E-01
5.680E 01	5.115E 01	5.115E 01	2.047E 03	-2.116E 03	-1.192E 03	-9.242E 02	3.280E 03	8.086E 01	1.229E-01	8.086E 01	1.229E-01
5.702E 01	4.996E 01	4.996E 01	2.096E 03	-2.144E 03	-1.201E 03	-9.433E 02	3.309E 03	7.898E 01	1.200E-01	7.898E 01	1.200E-01
5.775E 01	4.615E 01	4.615E 01	2.226E 03	-2.237E 03	-1.231E 03	-1.006E 03	3.402E 03	7.295E 01	1.109E-01	7.295E 01	1.109E-01
5.877E 01	4.759E 01	4.759E 01	2.335E 03	-2.370E 03	-1.274E 03	-1.095E 03	3.532E 03	7.523E 01	1.143E-01	7.523E 01	1.143E-01
6.078E 01	4.252E 01	4.252E 01	2.345E 03	-2.649E 03	-1.362E 03	-1.267E 03	3.790E 03	6.722E 01	1.022E-01	6.722E 01	1.022E-01
6.220E 01	3.654E 01	3.654E 01	2.345E 03	-2.855E 03	-1.430E 03	-1.425E 03	3.972E 03	5.777E 01	8.779E-02	5.777E 01	8.779E-02

READING = 0097 BLOCK = 240 TIME = 325.614 MACH 5.2 PI = 416.249 TT = 2209.9

XABS	P-IB	P-OB	PDA	WOX	W-IB	Q-CB	CA*ALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.466E 01	2.813E 01	2.813E 01	2.345E 03	-3.235E 03	-1.570E 03	-1.663E 03	4.289E 03	4.447E 01	6.758E-02	4.447E 01	6.758E-02
6.504E 01	2.547E 01	2.684E 01	2.345E 03	-3.295E 03	-1.593E 03	-1.700E 03	4.337E 03	4.027E 01	6.120E-02	4.244E 01	6.449E-02
6.508E 01	2.547E 01	2.671E 01	2.345E 03	-3.300E 03	-1.596E 03	-1.704E 03	4.342E 03	4.027E 01	6.120E-02	4.222E 01	6.416E-02
6.528E 01	2.400E 01	2.602E 01	2.345E 03	-3.330E 03	-1.609E 03	-1.722E 03	4.368E 03	3.794E 01	5.706E-02	4.114E 01	6.252E-02
6.694E 01	1.177E 01	1.065E 01	2.547E 03	-3.559E 03	-1.704E 03	-1.855E 03	4.583E 03	1.861E 01	2.829E-02	1.684E 01	2.559E-02
6.761E 01	9.079E 00	1.088E 01	2.762E 03	-3.645E 03	-1.737E 03	-1.908E 03	4.665E 03	1.435E 01	2.181E-02	1.720E 01	2.614E-02
6.838E 01	5.980E 00	8.713E 00	2.998E 03	-3.740E 03	-1.772E 03	-1.975E 03	4.760E 03	9.453E 00	1.437E-02	1.377E 01	2.093E-02
6.910E 01	5.149E 00	6.685E 00	3.168E 03	-3.850E 03	-1.802E 03	-2.048E 03	4.848E 03	8.140E 00	1.237E-02	1.057E 01	1.606E-02
6.971E 01	4.445E 00	5.733E 00	3.287E 03	-3.931E 03	-1.824E 03	-2.107E 03	4.922E 03	7.027E 00	1.068E-02	9.063E 00	1.377E-02
7.066E 01	3.202E 00	4.250E 00	3.426E 03	-4.022E 03	-1.855E 03	-2.167E 03	5.036E 03	5.062E 00	7.694E-03	6.718E 00	1.021E-02
7.109E 01	2.640E 00	3.913E 00	3.475E 03	-4.053E 03	-1.868E 03	-2.185E 03	5.068E 03	4.173E 00	6.342E-03	6.186E 00	9.401E-03
7.262E 01	1.948E 00	2.715E 00	3.606E 03	-4.157E 03	-1.909E 03	-2.248E 03	5.273E 03	3.079E 00	4.680E-03	4.292E 00	6.523E-03
7.277E 01	1.880E 00	3.183E 00	3.616E 03	-4.168E 03	-1.913E 03	-2.255E 03	5.290E 03	2.972E 00	4.517E-03	5.032E 00	7.648E-03
7.352E 01	2.686E 00	5.525E 00	3.738E 03	-4.225E 03	-1.931E 03	-2.292E 03	5.374E 03	4.246E 00	6.453E-03	8.734E 00	1.327E-02
7.352E 01	2.690E 00	5.537E 00	3.748E 03	-4.223E 03	-1.931E 03	-2.292E 03	5.375E 03	4.253E 00	6.463E-03	8.754E 00	1.330E-02
7.485E 01	4.115E 00	0.000	3.820E 03	-4.330E 03	-1.961E 03	-2.369E 03	5.426E 03	6.505E 00	9.886E-03	0.000	0.000
7.770E 01	6.660E 00	0.000	4.036E 03	-3.150E 03	-2.016E 03	-1.133E 03	5.525E 03	1.053E 01	1.600E-02	0.000	0.000
8.160E 01	7.680E 00	0.000	4.342E 03	-3.213E 03	-2.080E 03	-1.133E 03	5.630E 03	1.214E 01	1.845E-02	0.000	0.000
8.441E 01	9.005E 00	0.000	4.528E 03	-3.272E 03	-2.139E 03	-1.133E 03	5.684E 03	1.424E 01	2.163E-02	0.000	0.000
8.727E 01	9.140E 00	0.000	4.746E 03	-3.368E 03	-2.235E 03	-1.133E 03	5.707E 03	1.445E 01	2.196E-02	0.000	0.000
8.727E 01	9.140E 00	0.000	4.746E 03	-3.368E 03	-2.235E 03	-1.133E 03	5.707E 03	1.445E 01	2.196E-02	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.241E 02	1.241E 02	2.112E-03	4.736E-02
4.041E 01	1.695E-01	1.243E 02	2.124E-03	5.026E-02
4.129E 01	1.495E 01	1.392E 02	2.176E-03	5.192E-02
4.136E 01	1.106E 00	1.404E 02	2.181E-03	5.213E-02
4.150E 01	2.410E 00	1.426E 02	2.192E-03	5.240E-02
4.246E 01	1.634E 01	1.591E 02	2.223E-03	5.204E-02
4.408E 01	2.714E 01	1.862E 02	2.230E-03	5.125E-02
4.431E 01	3.806E 00	1.900E 02	2.238E-03	5.134E-02
4.479E 01	7.980E 00	1.980E 02	2.254E-03	5.152E-02
4.480E 01	1.013E-01	1.981E 02	2.255E-03	5.153E-02
4.552E 01	1.177E 01	2.099E 02	2.263E-03	5.071E-02
4.626E 01	1.185E 01	2.218E 02	2.236E-03	4.799E-02
4.731E 01	1.598E 01	2.377E 02	2.181E-03	4.324E-02
4.732E 01	1.164E-01	2.379E 02	2.181E-03	4.321E-02
4.811E 01	1.126E 01	2.491E 02	2.106E-03	3.854E-02
4.877E 01	8.653E 00	2.578E 02	2.009E-03	3.363E-02
4.930E 01	6.385E 00	2.641E 02	1.913E-03	2.966E-02
5.071E 01	1.432E 01	2.785E 02	1.554E-03	2.017E-02
5.281E 01	1.708E 01	2.955E 02	2.470E-03	6.042E-02
5.331E 01	2.816E 00	2.984E 02	2.544E-03	5.704E-02
5.405E 01	4.120E 00	3.025E 02	3.127E-03	4.524E-02
5.406E 01	5.727E-02	3.025E 02	3.133E-03	4.508E-02
5.482E 01	4.149E 00	3.067E 02	3.125E-03	4.363E-02
5.576E 01	4.824E 00	3.115E 02	3.107E-03	4.356E-02
5.623E 01	1.574E 00	3.131E 02	3.349E-03	3.776E-02
5.624E 01	4.282E-02	3.131E 02	3.212E-03	4.026E-02
5.630E 01	2.371E-01	3.134E 02	3.187E-03	4.146E-02
5.644E 01	6.155E-01	3.140E 02	3.231E-03	4.057E-02
5.652E 01	3.717E-01	3.144E 02	3.505E-03	3.593E-02
5.680E 01	1.366E 00	3.157E 02	3.481E-03	3.676E-02
5.702E 01	1.150E 00	3.169E 02	3.448E-03	3.812E-02
5.775E 01	4.048E 00	3.209E 02	3.373E-03	4.066E-02
5.877E 01	5.931E 00	3.268E 02	3.372E-03	4.052E-02
6.078E 01	1.279E 01	3.396E 02	3.287E-03	4.364E-02
6.220E 01	1.096E 01	3.506E 02	3.223E-03	4.500E-02
8.727E 01	3.292E 00	3.754E 02	3.252E-03	3.767E-02
6.466E 01	2.327E 01	3.986E 02	3.272E-03	4.355E-02
6.504E 01	3.971E 00	4.026E 02	3.260E-03	4.236E-02
6.508E 01	4.254E-01	4.030E 02	3.260E-03	4.232E-02
6.528E 01	2.132E 00	4.052E 02	3.255E-03	4.160E-02
6.694E 01	1.666E 01	4.218E 02	3.132E-03	2.651E-02
6.761E 01	5.690E 00	4.275E 02	3.109E-03	2.453E-02
6.838E 01	6.026E 00	4.335E 02	3.057E-03	1.989E-02
6.910E 01	4.939E 00	4.385E 02	3.021E-03	1.706E-02
6.971E 01	3.788E 00	4.423E 02	3.005E-03	1.532E-02
7.066E 01	5.187E 00	4.475E 02	2.970E-03	1.222E-02
7.109E 01	2.081E 00	4.495E 02	2.952E-03	1.110E-02
7.262E 01	6.431E 00	4.560E 02	2.903E-03	8.565E-03
7.277E 01	5.541E-01	4.565E 02	2.912E-03	9.115E-03
7.352E 01	3.232E 00	4.598E 02	2.967E-03	1.305E-02
7.352E 01	7.071E-03	4.598E 02	2.967E-03	1.307E-02
7.485E 01	2.263E 00	4.620E 02	2.960E-03	1.304E-02
7.770E 01	4.877E 00	4.669E 02	3.008E-03	1.833E-02
8.160E 01	6.047E 00	4.729E 02	3.008E-03	2.009E-02
8.441E 01	3.354E 00	4.763E 02	3.019E-03	2.231E-02
8.727E 01	1.443E 00	4.777E 02	3.009E-03	2.244E-02

READING = 0097 BLOCK = 240 TIME = 325.614 MACH 5.2 PI = 416.249 TI = 2209.9

X	DDRAG	CDRAG	CF	HC
8.727E 01	0.000	4.777E 02	3.009E-03	2.244E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	3942.	(LBF)
MEASURED THRUST	3168.	(LBF)
CALCULATED SPECIFIC IMPULSE	3725.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2994.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	1.3359	
MEASURED THRUST COEFFICIENT	1.0736	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	9138.	(LBF)
NET THRUST	3842.	(LBF)
SPECIFIC IMPULSE	3631.	(LBF-SEC/LBM)
THRUST COEFFICIENT	1.3020	

MOMENTUM AND FORCES

INLET FRICTION DRAG	124.1	(LBF)
INLET MOMENTUM CHANGE	-886.6	(LBF)
COMBUSTOR FRICTION DRAG	226.5	(LBF)
COMBUSTOR STRUT DRAG	181.07	(LBF)
COMBUSTOR MOMENTUM CHANGE	2619.	(LBF)
NOZZLE FRICTION DRAG	102.36	(LBF)
NOZZLE STRUT DRAG	89.28	(LBF)
NOZZLE MOMENTUM CHANGE	2210.	(LBF)
NOZZLE PRESSURE INTEGRAL	2401.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1475.	(LBF)
TOTAL STRUT DRAG	270.35	(LBF)
CAVITY FORCE	-1726.	(LBF)
CALCULATED LOAD CELL FORCE	741.	(LBF)
MEASURED LOAD CELL FORCE	-33.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-155.4, 0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2969	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.183	(IN)
NOZZLE SHROUD TRAILING EDGE	73.523	(IN)
NOZZLE PLUG TRAILING EDGE	67.275	(IN)
STRUT LEADING EDGE	56.439	(IN)
STRUT TRAILING EDGE	65.039	(IN)
COMBUSTOR EXIT	62.199	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.8643	
ADDITIVE DRAG COEFFICIENT	0.0111	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.2936	
DELTA PT2	0.1366	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.5473	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.2984	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9244	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9225	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9351	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8933	
ENTHALPY AT PO - SUPERSONIC	-24.21	(BTU/LBM)
ENTHALPY AT PO - SUBSONIC	-4.30	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0314
EQUIVALENCE RATIO	1.077
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.2848
COMBUSTOR EFFECTIVENESS	0.9196
INJECTOR DISCHARGE COEFFICIENTS	0.7351, 0.6897,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0144
NOZZLE COEFFICIENT - CT	0.9375
PROCESS EFFICIENCY	1.0531
KINETIC ENERGY EFFICIENCY	1.0307

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.284	
1C	44.300	
2A	48.759	
2C	46.250	
3A	54.049	E
3B	56.234	E
4	44.784	

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